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NEW OR NOTEWORTHY PHILIPPINE PLANTS, XVII

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The last paper of this series was published in 1920.¹ In the present paper one hundred six new species are described from various parts of the Philippines, while a redescription of *Ficus argentea* Blanco is included. This species, previously known only from Blanco's imperfect description, on receipt of material agreeing with his description in all essentials proves to be a valid one. *Polychroa* Loureiro is accepted as the proper generic name for the group long known as *Pellionia* Gaudichaud, while the few Philippine forms formerly placed in *Polytrema* are now transferred to *Hallieracantha*. Three genera, *Pyrenaria*, *Pleiocarpidia*, and *Cowiea*, the latter a recently described genus previously known by a single species in British North Borneo, are recorded from the Philippines for the first time. A few notes on nomenclature are included, which involve some changes in specific names.

GRAMINEAE

ICHNANTHUS Beauvois

ICHNANTHUS VICINUS (F. M. Bail.) comb. nov.

Panicum vicinum F. M. Bail. Syn. Queensl. Fl. Suppl. 3 (1890) 82.

Ichnanthus pallens Munro in Benth. Fl. Hongk. (1861) 414; Merr. in Philip. Journ. Sci. 1 (1906) Suppl. 261, 363; Hack. in Govt. Lab. Publ. (Philip.) 35 (1906) 80, non *Panicum pallens* Sw.

Panicum paludicolum Miq. Fl. Ind. Bat. 3 (1857) 454; F.-Vill. Novis. App. (1882) 312, non Nees.

Panicum nitens Merr. in Govt. Lab. Publ. (Philip.) 17 (1904) 8.

¹ Merrill, Elmer D., New or noteworthy Philippine plants, XVI, Philip. Journ. Sci. 17 (1920) 239-323.

Luzon (Kalinga, Bontoc, Bataan, Laguna, Sorsogon), Catanduanes, Mindoro, Biliran, Mindanao. Merrill 3756, 3221, 5498, 5538, *Phil. Pl.* 109, Kneucker *Gram. Exsic.* 740, B. S. 30226, 23608 Ramos, 18502 McGregor, 37475, 38608 Ramos & Edaña. On forested slopes and ridges up to 1,600 m altitude. India to southern China and Formosa through Malaya to tropical Australia.

The Old World form has long been referred to *Ichnanthus pallens* (Sw.) Munro, the type of which was from tropical America. The Indian, Chinese, Philippine, Malayan, and Australian material consistently differs from the American material in its larger spikelets. A fragment of Bailey's type of *Panicum vicinum* has kindly been supplied to me by Mr. T. C. White of Brisbane, and it is identical with the Asiatic and Malayan form. I had long suspected that our form was specifically distinct from the American one, because as it occurs in the Old World it is a native, not an introduced, grass. This suspicion has been verified by Prof. A. S. Hitchcock, who went over the material with me, first in Washington and more recently in Manila, and who likewise considers the Old World form to be specifically distinct from the American one.

In addition to the Philippine material and the Australian type mentioned above the species is represented in the Bureau of Science herbarium by specimens from the Malayan Peninsula, southern China, Formosa, Sumatra, Java, New Guinea, and Australia.

MORACEAE

FICUS Linnaeus

FICUS ARGENTEA Blanco *Fl. Filip.* (1837) 681, ed. 2 (1845) 473, ed. 3, 3 (1879) 84.

Ficus polycarpa F.-Vill. *Novis. App.* (1880) 200, non Roxb.

Ficus sp. Merr. *Sp. Blancoanae* (1918) 129.

A tree about 8 m high, glabrous except the very densely pubescent peduncles and receptacles, the indumentum silvery white to pale ferruginous. Branches somewhat rugose, reddish-brown, glabrous, the ultimate ones 6 to 8 mm in diameter, the very tips of the branchlets sparingly appressed-pubescent. Leaves somewhat crowded at the tips of the branchlets, oblong to oblong-elliptic, chartaceous to subcoriaceous, smooth, entire, brownish olivaceous, slightly shining, the lower surface rather minutely punctulate-verruculose, 11 to 15 cm long, 5 to 6.5 cm wide, the apex rather acuminate, the base rounded and somewhat 3-nerved; primary lateral nerves 10 to 12 on each side of the midrib,

slender, distinct as are the rather close reticulations; petioles reddish-brown when dry, 5 to 7 cm long; stipules broadly ovate, shortly acuminate, pubescent, about 6 mm long. Receptacles borne in fascicles along the ultimate branches below the leaves, usually 3 or 4 in a fascicle, the fascicles numerous, the individual receptacles globose to slightly obovoid, 6 to 7 mm in diameter, very densely and softly pubescent with silver white to pale ferruginous hairs, their peduncles densely pubescent, about 5 mm long, the bracts subtending the receptacles broadly ovate, obtuse, glabrous or slightly pubescent, 1.5 to 2 mm long. Male flowers few, only near the ostiole, the stamen 1, about 0.5 mm long. Ovaries of the gall flowers and fertile female flowers ovoid, about 1 mm long, the styles of the former about 0.5 mm in length, those of the latter 1 mm long. Perianth segments membranaceous, oblong-lanceolate, about 1 mm long.

MINDORO, Paluan, *Bur. Sci.* 39732 Ramos, April 9, 1921. In dry forests at low altitudes.

This species is closely allied to *Ficus stipulosa* Miq. which has been reduced by some authors to the widely distributed Indo-Malayan *Ficus infectoria* Roxb. It is readily distinguished by its very densely pale pubescent peduncles and receptacles. Blanco described the receptacles as flowers and the subtending bracts as the calyx. The specimens on which the above description was based agree very closely with Blanco's original description except that the leaves are scarcely undulate, while the receptacles are globose to slightly obovoid rather than "de figura de trompa," that is, pyriform. I have seen no other species of *Ficus* that even remotely agrees with Blanco's imperfect description and am confident that the plant here considered represents the form he so imperfectly described. In my *Species Blancoanae* (1918) 129, I expressed the opinion that *Ficus argentea* Blanco might have been based on immature specimens of *Ficus ruficaulis* Merr. but the recent receipt of material agreeing essentially with Blanco's description shows that this surmise was wrong.

FICUS XAVIERI sp. nov. § *Urostigma*.

Species *F. benjaminiae* simillimis et affinis differt receptaculis dense et molliter cinereo-pubescentibus.

A strangling fig reaching a height of 10 m or more, branches and receptacles densely and softly cinereous-pubescent. Branches glabrous, terete, grayish, the younger ones more or less rugose, the young branchlets 2 to 2.5 mm in diameter.

Leaves ovate to elliptic, subcoriaceous, 6 to 10 cm long, 3 to 5 cm wide, rather pale when dry, glabrous, shining, the base broadly acute to rounded, the apex rather abruptly subcaudate-acuminate, the acumen up to 1 cm in length, rather slender, obtuse to acute; lateral nerves numerous, spreading, parallel, the secondary ones practically as prominent as the primary ones, anastomosing close to the edge of the leaf and forming a very slender, somewhat arched, marginal nerve, 1 to 2 mm from the edge of the leaf; petioles 8 to 15 mm long, not jointed, pubescent when young, ultimately glabrous, slender, rather deeply channeled on the upper surface; stipules narrowly lanceolate, 1.5 cm long, glabrous or nearly so, slenderly acuminate. Receptacles globose to ovoid, axillary, sessile, densely and softly cinereous-pubescent, solitary or in pairs, 8 to 12 mm in diameter, the subtending bracts usually 2, pubescent, 2 to 3 mm long, 4 to 8 mm wide, the ostiole obscure. Staminate flowers few, scattered, the perianth segments 3, spatulate, brown, 2 mm long; anthers about 0.6 mm long. Fertile female flowers numerous, their perianth segments similar to those of the staminate flowers, the ovary subellipsoid, about 1 mm long, rounded; styles slender, 2 mm long. Gall flowers similar to the fertile female ones except that the styles are wanting or very short. Bracteoles linear, about 2 mm long.

LUZON, Laguna Province, Los Baños, *F. X. Williams s. n.*, and *For. Bur. 28480 Salvosa*, June, 1921, from the same tree. In forests along Molauin River near the College of Agriculture, altitude about 120 meters, growing on *Bischofia javanica* Blume.

This species is dedicated to Mr. Francis Xavier Williams, entomologist of the Hawaiian Sugar Planters' Experiment Station, who also collected botanical material from the same tree. Mr. Williams has devoted a considerable amount of time to a study of the Philippine fig insects with the view to their possible introduction into Hawaii. It is at once distinguished from *Ficus benjamina* Linn., which it closely resembles, by its densely pubescent receptacles.

FICUS KALINGAENSIS sp. nov. § *Covellia*.

Species *F. myriocarpae* Miq. affinis differt foliis basi truncato-rotundatis, haud cordatis, receptaculis majoribus, longiter pedunculatis.

A tree about 5 m high, the branches reddish-brown, wrinkled, glabrous, the very young branchlets supplied with scattered, spreading, slender, rather stiff hairs up to 6 mm in length.

Leaves alternate, long-petioled, broadly ovate, thickly chartaceous or subcoriaceous, 17 to 22 cm long, 12 to 16 cm wide, the base rather broadly truncate-rounded, apex acuminate, margins rather finely serrate, both surfaces rather harsh, the upper surface olivaceous, supplied with widely scattered, white, stiff, spreading hairs, the lower surface paler, distinctly pubescent on the midrib, nerves, and reticulations, and with scattered, elongated, stiff hairs on the midrib and lateral nerves similar to those on the upper surface; lateral nerves 10 to 12 on each side of the midrib, prominent, nearly straight, the primary reticulations subparallel, distinct; petioles 6 to 10 cm long, supplied with scattered, elongated, stiff hairs similar to those on the branchlets; stipules broad, up to 4 cm long, acuminate, glabrous except on the median portion of the back below, which is supplied with scattered, elongated hairs similar to those on the branchlets. Inflorescences cauline, apparently from near the base of the trunk, elongated, simple, up to at least 30 cm in length, glabrous or nearly so, the rachis about 5 mm in diameter. Receptacles fascicled at the nodes or on the stout, slightly produced, lateral branches, globose to obovoid, about 8 mm in diameter, brown when dry, distinctly lenticellate, minutely furfuraceous, their peduncles up to 12 mm long, the receptacles subtended by 3, ovate, minutely pubescent, acute bracts about 2.5 mm in length. Inside of the receptacles somewhat ciliate. Male flowers not seen. Fertile female flowers sessile or pediceled, their perianth segments oblong-obovate, about 2 mm long, slightly ciliate at the tips; styles about 1 mm long.

LUZON, Kalinga Subprovince, Mount Masingit, near Lubuagan, *Bur. Sci.* 37592 Ramos & Edaño, February 17, 1920. Along streams in the mossy forest, altitude about 1,300 meters.

A species closely allied to *Ficus myriocarpa* Miq. which is known only from Amboina Island. It resembles this species in its habit, its vegetative characters, indumentum, and the arrangement of its receptacles. It differs notably in its truncate-rounded, not cordate, leaf bases and in its larger and longer-peduncled receptacles.

URTICACEAE

ELATOSTEMA Forster

ELATOSTEMA BONTOCENSE sp. nov.

Herba erecta, ramosa, succulenta, saltem ad 40 cm alta, ramis plus minusve adpresse hirsutis; foliis numerosissimis, parvis, valde inaequilateralibus, chartaceis, glabris, olivaceis, circiter

1 cm longis, 5 mm latis, cystolithis paucis vel nullis, apice obtusis vel subacutis, dentibus utrinque 2 vel 3, obtusis; nervis 1 vel 2 utrinque; stipulis anguste oblongis, glabris, 1.4 mm longis; inflorescentiis ♂ axillaribus, solitariis, sessilibus, paucifloris, bracteis liberis, exterioribus ellipticis, obtusis, 2 mm longis, bracteolis oblongis ad oblongo-ellipticis; floribus 3 vel 4, 5-meris, segmentis ellipticis, leviter cucullatis, ciliatis, 2 mm longis.

An erect, apparently succulent, much-branched herb, at least 40 cm high, the stems and branches somewhat appressed-hirsute with short hairs. Leaves very numerous, glabrous, chartaceous, very inequilateral, oblong to oblong-ovate, generally about 10 mm long and 5 mm wide, brownish olivaceous when dry, sometimes with obvious cystoliths along the midrib and nerves on the upper surface, more often without evident cystoliths, the apex obtuse or subacute, the base very inequilateral, acute on the narrower side and broadly rounded on the wider side, the narrower side with usually 2 teeth in the upper part, the broader side with usually 3 teeth, the teeth obtuse; nerves 1 or 2 on each side of the midrib; stipules narrowly oblong, glabrous, 1.4 mm long. Staminate inflorescences axillary, solitary, sessile, obovoid, few-flowered, 2 or 3 flowers only in each fascicle, the bracts free, the outer ones elliptic, obtuse, 2 mm long, the bracteoles oblong-elliptic, thinner than the bracts and about one-half as wide. Perianth segments 5, elliptic, slightly cucullate, rather prominently ciliate, about 2 mm long.

LUZON, Bontoc Subprovince, Mount Polis, *Bur. Sci.* 37660 Ramos & Edaño, February 25, 1920. On tree trunks in the mossy forest, altitude about 1,800 meters, with the local name *ngalngaloi*.

This species belongs in the group with *Elatostema podophyllum* Wedd. and *E. benguetense* C. B. Rob., but is easily distinguishable from these two species by the few, or more often obsolete, cystoliths.

ELATOSTEMA CAPIZENSE sp. nov.

Herba erecta ut videtur succulenta, usque ad 40 cm alta, simplex, caulis deorsum prostratis; foliis membranaceis, plus minusve inaequilateralibus, oblongo-ellipticis ad anguste oblongo-obovatis, glabris, 11 ad 17 cm longis, olivaceis vel brunneis, cystolithis numerosis instructis, basi acutis, apice subabrupte caudato-acuminatis, margine in $\frac{1}{3}$ superiore parte distanter crenato-serratis, deorsum integris; nervis utrinque circiter 8,

reticulis obscuris, laxis; inflorescentiis ♀ solitariis, sessilibus, 10 ad 12 mm diametro, bracteis connatis, lobis numerosis, linearis ad lineari-lanceolatis, circiter 3 mm longis, ciliatis, bracteolis linearis ad spatulatis, 2.5 ad 3 mm longis, perspicue ciliatis; pedicellis circiter 1.5 mm longis; acheniis brunneis, subellipsoideis, subacutis, 0.6 mm longis.

An erect, apparently succulent, unbranched herb, up to 40 cm high, the basal portion of the stem somewhat prostrate, the stems apparently succulent when fresh, without cystoliths. Leaves membranaceous when dry, sessile or subsessile, somewhat inequilateral, oblong-elliptic to narrowly oblong-obovate, 11 to 17 cm long, 4 to 6 cm wide, olivaceous or brownish when dry, the apex slenderly and rather abruptly caudate-acuminate, the base somewhat inequilateral, narrow, acute on the narrower side, acute or slightly obtuse on the broader side, the margins in the lower one-half to two-thirds entire, in the upper part very distantly crenate-serrate, the upper surface with numerous cystoliths, distinctly visible to the naked eye, the lower surface of the same color as the upper, the cystoliths conspicuous; lateral nerves about 8 on each side of the midrib, distinct, anastomosing directly with the marginal nerves, the reticulations lax, obscure; stipules lanceolate, glabrous, membranaceous, acuminate, up to 1 cm long. Pistillate inflorescences axillary, solitary, 10 to 12 mm in diameter, apparently somewhat flattened, the bracts united to form a flattened receptacle 5 to 7 mm in diameter, the lobes of the receptacle numerous, linear to linear-lanceolate, acuminate, about 3 mm long, ciliate; bracteoles very numerous, linear to spatulate, 2.5 to 3 mm long, prominently ciliate; pedicels slender, about 1.5 mm long. Achenes brown, subellipsoid, about 0.6 mm long, subacute.

PANAY, Capiz Province, Mount Macosolon, *Bur. Sci.* 30748 Ramos & Edaña, April 19, 1918. On boulders along small streams in damp forests at low altitudes.

This species was originally identified as *Elatostema integrifolium* Wedd., which it somewhat resembles in vegetative characters, but to which it is not closely allied. Striking differential characters of the present species are its membranaceous, caudate-acuminate leaves which are entire below and distinctly crenate-serrate above; its bracts being united to form a common receptacle, the tips of the bracts (lobes) being numerous and linear to lanceolate; and in being entirely glabrous throughout except for the inflorescences.

ELATOSTEMA EDAÑOII sp. nov.

Herba erecta, ramosa, glabra, succulenta, saltem 40 cm alta; foliis numerosis, lanceolatis, chartaceis, in siccitate atro-viridis, 9 ad 11 cm longis, leviter inaequilateralibus, apice acuminatis, basi acutis, margine in $\frac{3}{4}$ inferiore parte integris, sursum dentibus paucis distantibus instructis, cystolithis conspicuis; nervis utrinque circiter 7, tenuibus, supra subobsoletis, reticulis subtus obsoletis; stipulis lanceolatis, glabris, 5 mm longis; inflorescentiis ♂ solitariis, sessilibus, depresso-globosis, circiter 1 cm diametro, bracteis exterioribus liberis, margine ciliatis, reniformi-ovatis, 6 mm longis, 9 mm latis, carinatis, apiculatis, bracteolis oblongis ad obovatis, 4 mm longis, 2 ad 3 mm latis, truncatis, apice ciliatis, lineolatis; floribus 4-meris, pedicellatis, lobis ellipticis, 2.5 ad 3 mm longis, 2 acutis, 2 leviter cucullatis et corniculatis.

An erect, glabrous, branched, succulent herb, at least 40 cm high, the stems and branches apparently succulent, glabrous, without cystoliths. Leaves numerous, lanceolate, chartaceous when dry, dark green in color, 9 to 11 cm long, 1.7 to 2.5 cm wide, slightly inequilateral, the apex acuminate, the base acute, the margins in the lower three-fourths entire, the upper portion with few, very distant, serrate teeth, the upper surface supplied with numerous, irregularly disposed cystoliths which are distinctly visible to the naked eye, the lower surface somewhat paler, without cystoliths, smooth, the midrib conspicuous, the lateral nerves about 7 on each side of the midrib, slender, obsolete on the upper surface, not prominent on the lower surface, arched-anastomosing, the reticulations obsolete; petioles 1 to 2 mm long; stipules lanceolate, acuminate, somewhat falcate, glabrous, about 5 mm long. Staminate inflorescences axillary, solitary, sessile, depressed-globose, up to 1 cm in diameter, the outer two bracts reniform-ovate, about 6 mm long, 9 mm wide, subcoriaceous, keeled, slightly apiculate, the margins minutely ciliate; bracteoles very numerous, oblong to obovate, about 4 mm long, 2 to 3 mm wide, truncate, slightly ciliate at the apex, marked with numerous small, elongated, reddish-brown lines, all more or less concave. Flowers 4-merous, white, the pedicels 2.5 mm long, perianth lobes membranaceous, elliptic, 2.5 to 3 mm long, two acute and two somewhat cucullate and shortly spurred, the spur stout, 0.8 mm long, slightly ciliate.

LUZON, Kalinga Subprovince, Mount Masingit near Lubuagan, *Bur. Sci.* 37603 Ramos & Edaño, February 17, 1920. On tree trunks in forests along streams, altitude about 1,300 meters.

A very strongly marked species, well characterized by its conspicuous cystoliths and its nearly entire, lanceolate, very slightly inequilateral, obscurely nerved leaves.

ELATOSTEMA EUPHLEBIUM sp. nov.

Herba suffruticosa, erecta, ramosa, caulis teretibus, 4 ad 5 mm diametro, ramis adpresse cinereo-hirsutis; foliis lanceolatis, subcoriaceis, rigidis, inaequilateralibus, 4 ad 8 cm longis, olivaceis, caudato-acuminatis, margine acute et grosse serratis, dentibus acuminatis, supra cystolithis numerosis instructis, junioribus plus minusve ciliatis, nervis utrinque 6 vel 7, impressis, subtus valde perspicuis et adpresse hirsutis; stipulis 4 mm longis; inflorescentiis ♂ solitariis, sessilibus vel subsessilibus, usque ad 6 mm diametro, multifloris, bracteis exterioribus orbiculari-ovatis, rotundatis, leviter ciliatis, liberis, bracteolis angustis, ciliatis, floribus 4-meris, lobis oblongo-ovatis ad spatulatis, 2 mm longis, haud corniculatis, 2 leviter cucullatis, supra leviter ciliatis.

An erect or ascending, much-branched, suffrutescent plant, the stems distinctly woody, terete, 4 to 5 mm in diameter, the branches usually 20 cm long or less, appressed-hirsute with cinereous hairs. Leaves inequilateral, lanceolate, rigid, subcoriaceous, 4 to 8 cm long, 10 to 18 mm wide, olivaceous, the apex caudate-acuminate, base inequilateral, acute on the narrower side, obtuse on the broader side, the margins sharply and rather coarsely serrate, the teeth somewhat acuminate, the upper surface with numerous cystoliths and when young supplied with numerous, stiff, white hairs, these hairs more or less deciduous on the older leaves, some, however, usually persisting, their bases often thickened, the lower surface paler than the upper, the midribs and nerves appressed-hirsute, the cystoliths conspicuous, the midrib and lateral nerves impressed on the upper surface, very prominent on the lower surface, the lateral nerves 6 or 7 on each side of the midrib, arched-anastomosing; stipules lanceolate, acuminate, about 4 mm long. Staminate inflorescences axillary, solitary or in pairs, sessile or very shortly peduncled, up to 6 mm in diameter, many-flowered, outer bracts orbicular-ovate, about 3 mm long, rounded, somewhat ciliate, free, the bracteoles narrow, ciliate. Flowers 4-merous, the lobes oblong-ovate to spatulate, 2 mm long, slightly ciliate above, two of them slightly cucullate, none spurred.

LUZON, Bontoc Subprovince, Mount Pukis, *Bur. Sci.* 37765 *Ramos & Edaño*, March 10, 1920. On forested slopes, altitude about 1,800 meters.

This species has much the habit of *Elatostema kalingaense* Merr. and, like that species, resembles in vegetative characters *E. contiguum* C. B. Rob. It differs from Robinson's species in the same characters as does *E. kalingaense*, and from the latter species in its much thicker, very conspicuously nerved leaves, the midribs and lateral nerves being strongly impressed on the upper surface.

ELATOSTEMA KALINGAENSE sp. nov.

Herba ramosa, glabra, caulis deorsum decumbens, ramis adpresse strigoso-hirsutis; foliis membranaceis, lanceolatis, leviter falcatis, 4 ad 6 cm longis, tenuiter caudato-acuminatis, margine grosse serratis; inflorescentiis ♂ solitariis, sessilibus, 5 mm diametro, perspicue ciliatis, bracteis liberis, exterioribus late ovatis, acuminatis, 4 mm longis, bracteolis oblongis ad spatulatis, ciliatis; floribus 4-meris, sessilibus, segmentis perspicue ciliatis, haud corniculatis.

An ascending, branched herb, the lower parts of the stems creeping or prostrate and rooting where in contact with the substratum, greenish-olivaceous when dry, with numerous cystoliths, glabrous or nearly so, the younger branches appressed-strigose-hirsute, rather slender. Leaves membranaceous, dark green when dry, lanceolate, somewhat falcate, 4 to 6 cm long, 9 to 12 mm wide, the apex slenderly caudate-acuminate, the base inequilateral, acute on the narrower side, rounded to obtuse on the broader and longer side, the margins coarsely serrate, the teeth somewhat acuminate, the upper surface with numerous irregularly disposed cystoliths and with few, stiff, elongated, somewhat curved hairs from swollen bases, the lower surface slightly paler than the upper, the cystoliths distinct, the midrib and nerves more or less appressed-strigose-hirsute; stipules linear, lanceolate, about 2 mm long. Staminate inflorescences axillary, solitary, about 5 mm in diameter, many-flowered, conspicuously ciliate with grayish hairs, the bracts free, the outer ones broadly ovate, acuminate, prominently ciliate, about 4 mm long; bracteoles oblong, spatulate, ciliate and nearly as long as the bracts. Flowers numerous, sessile, 4-merous, the perianth segments oblong to spatulate, obtuse, 2 mm long, two somewhat cucullate, none spurred, all conspicuously ciliate above.

LUZON, Kalinga Subprovince, Mount Masingit, near Lubuagan, *Bur. Sci.* 37493 Ramos & Edaño, February 16, 1920. On boulders or ledges along streams, altitude about 1,200 meters.

This species in vegetative characters closely approximates *Elatostema contiguum* C. B. Rob., but differs radically in its

habit, being freely branched, and further differs in its floral characters. It is very easily distinguished from *Elatostema lignosum* Merr. by its entirely different habit, the stems creeping and rooting below not being strictly erect and woody. The floral characters of the two species are radically different.

ELATOSTEMA LIGNOSUM sp. nov.

Erecta, ramosa, fruticosa, usque ad 80 cm alta, caulis teretibus, lignosis, 4 ad 5 mm diametro, ramis paucis, elongatis, adpresse strigoso-hirsutis; foliis chartaceis, fragilis, olivaceis, lanceolatis, usque ad 9 cm longis, tenuiter caudato-acuminatis, basi inaequilateralibus, acutis, margine subgrosse serratis, supra glabris, olivaceis, cystolithis numerosis instructis; nervis utrinque 5 ad 9, subtile valde perspicuis et adpresse strigoso-hirsutis; inflorescentiis ♂ axillaribus, sessilibus, 4 ad 5 mm diametro, bracteis liberis, exterioribus orbicularibus, rotundatis, leviter ciliatis, 3.5 mm longis, bracteolis spatulatis; floribus numerosis, 4-meris, segmentis oblongis ad ellipticis, 1.5 mm longis, haud corniculatis.

An erect, branched, woody plant up to 80 cm high, the stems terete, 4 to 5 mm in diameter, olivaceous when dry, the epidermis supplied with very numerous cystoliths, the branches few, elongated, up to 20 cm in length, the branchlets terete, appressed-strigose-hirsute, olivaceous. Leaves chartaceous, lanceolate, 5 to 9 cm long, 1.2 to 2.5 cm wide, brittle when dry, olivaceous, inequilateral, the base acute on both sides, one side longer and broader than the other, the apex slender, caudate-acuminate, the margins rather coarsely serrate except near the base, the upper surface olivaceous, densely covered with numerous, irregularly disposed cystoliths which are distinctly visible to the naked eye, the lower surface slightly paler than the upper, the midrib, marginal and lateral nerves very prominent, the lateral nerves 5 to 9 on each side of the midrib, anastomosing directly with the more or less arched marginal nerves, the cystoliths chiefly confined to the midrib, nerves, and reticulations, the midrib and primary nerves more or less appressed-strigose-hirsute; stipules lanceolate, acuminate, 3.5 mm long. Staminate inflorescences axillary, solitary or in pairs, sessile, 4 to 5 mm in diameter. Outer bracts orbicular, free or nearly so, 3.5 mm long, rounded, slightly ciliate; bracteoles spatulate, about 2 mm long, more or less ciliate above. Flowers numerous, 4-merous, the perianth segments oblong to elliptic, about 1.5 mm long, slightly ciliate at the apex, acute, two of them slightly cucullate, none spurred.

LUZON, Benguet Subprovince, near Baguio, *Merrill 9697*, May, 1914. In shaded places about limestone boulders, altitude about 1,400 meters.

In vegetative characters this species somewhat resembles *Elatostema contiguum* C. B. Rob., but differs remarkably in its habit, being a much taller, strictly erect, branched plant, the stems being decidedly woody.

ELATOSTEMA SAMARENSE sp. nov.

Herba succulenta, parce ramosa, usque ad 50 cm alta, in siccitate pallide flavido-viridis, ramis parce ciliatis; foliis chartaceis, leviter inaequilateralibus, oblanceolatis, 6 ad 11 cm longis, tenuiter acuminatis, margine perspicue serratis, supra cystolithis numerosis instructis, scabris, foliis junioribus plus minusve ciliatis; nervis utrinque 4 ad 6, supra impressis, subtus valde perspicuis; stipulis anguste lanceolatis, circiter 1 cm longis; inflorescentiis ♀ axillaribus, sessilibus, solitariis, 5 ad 10 mm diametro, bracteis connatis, lobis paucis, oblongis, 1.7 mm longis, ciliatis, bracteolis anguste oblongis, 2 mm longis; floribus numerosis, acheniis oblongis, brunneis, cylindraceis, 0.8 mm longis.

An erect, sparingly branched, succulent herb, about 50 cm high, pale greenish yellow when dry, the stem glabrous with numerous cystoliths, the branches with scattered, spreading, elongated, weak, white hairs. Leaves chartaceous when dry, somewhat inequilateral, oblanceolate, 6 to 11 cm long, 2 to 3 cm wide, the apex slenderly acuminate, the base somewhat inequilateral, acute on the narrower side, obtuse on the broader side, the margins rather conspicuously serrate except near the base, the upper surface with numerous cystoliths, scabrous, the younger leaves with numerous, spreading, elongated, weak hairs from swollen bases, the swollen bases persisting on the older leaves causing the surface to be distinctly scabrous, the lower surface of the same color as the upper with equally distinct cystoliths, the midrib and nerves with scattered, conspicuous, spreading, white hairs; lateral nerves 4 to 6 on each side of the midrib, impressed on the upper surface, very prominent on the lower surface, arched-anastomosing; stipules narrowly lanceolate, acuminate, somewhat ciliate, about 1 cm long. Pistillate inflorescences axillary, sessile, 5 to 10 mm in diameter, flattened, irregular, the bracts connate, forming an irregularly lobed receptacle about 6 mm in diameter, the lobes rather few, oblong, 1.7 mm long, ciliate; bracteoles very numerous, narrowly oblong, 2 mm long,

ciliate. Flowers very numerous, the achenes oblong, 0.8 mm long, brown, cylindric.

SAMAR, Catubig River, *Bur. Sci.* 34117 Ramos, February, 1916. In damp forests at low altitudes.

This species is perhaps as closely allied to *Elatostema barurin-gense* Elm. as to any other species, but differs radically in numerous characters. It is at once distinguishable from the above species in its scabrous leaves and in the type of its hairs, Elmer's species having softly pubescent leaves.

PIPTURUS Weddell

PIPTURUS ANGUSTIFOLIUS sp. nov.

Frutex dioicus, 2 ad 3 m high, ramis rubro-brunneis, hirsutis; foliis coriaceis, rigidis, lanceolatis, in siccitate pallidis, 5 ad 9 cm longis, 1.3 ad 2 cm latis, tenuiter acuminatis, basi obtusis, 3-nervis, margine crenato-dentatis, utrinque scabridis, subtus dense cinereo-puberulis et ad costa nervisque adpresse strigoso-hirsutis, nervis utrinque 2 vel 3; floribus ♀ capitulato-fasciculatis, fasciculis spicatum dispositis, spicis 1 ad 2 cm longis, axillaribus, fasciculis 3 ad 5, 3 ad 4 mm diametro; acheniis ovoideis, 1 mm longis, breviter ferrugineo-pubescentibus.

A dioecious shrub, 2 to 3 m high, the branches and branchlets dark reddish-brown, more or less hirsute with short, stiff, pale hairs. Leaves coriaceous, rigid, brittle, lanceolate, pale when dry, 5 to 9 cm long, 1.3 to 2 cm wide, narrowed upward to the rather slenderly acuminate apex, the base obtuse, the margins crenate-dentate, the upper surface scabrid, sometimes with a very few scattered hairs, the lower surface paler than the upper, scabrid, the midrib, nerves, and reticulations appressed-strigose-hirsute and densely cinereous-puberulent on the surface; basal nerves 3, ascending, reaching to or beyond the middle of the leaf, the lateral nerves above the basal pair 2 or 3 on each side of the midrib, distinct, as are the reticulations; petioles 5 to 10 mm long, densely cinereous-hirsute; stipules lanceolate, acuminate, deciduous, about 5 mm long. Female flowers in spicately arranged fascicles, the spikes axillary, solitary, 1 to 2 cm long, the fascicles 3 to 5 on each spike, glabrous, dense, many-flowered, 3 to 4 mm in diameter; bracts lanceolate to obovate-lanceolate, acuminate, 2 to 3 mm long. Flowers numerous, crowded, sessile. Achenes ovoid, 1 mm long, ferruginous-pubescent with short hairs; styles 1.5 to 2 mm long, deciduous, pubescent.

LEYTE, Dagami, *Bur. Sci.* 15320 Ramos, August 6, 1912. In thickets along streams at low altitudes.

The alliance of this species is manifestly with *Pipturus argenteus* Wedd., from which it is readily distinguishable by its unusually narrow, lanceolate leaves.

POLYCHROA Loureiro

(*Pellionia* Gaudichaud)

POLYCHROA MULTINERVIA sp. nov.

Suffruticosa, erecta vel subscandens, usque ad 50 cm alta, partibus junioribus et subtus foliis ferrugineo-pubescentibus; foliis membranaceis, lanceolatis, aequilateralibus, 15 ad 20 cm longis, tenuiter acuminatis, basi obtusis, margine grosse et regulariter dentatis, nervis utrinque circiter 30, perspicuis; cymis axillaribus, parvis, circiter 1 cm diametro; floribus ♀ 5-meris, sepalis omnibus corniculatis, sub anthesin 3 mm longis, accrescentibus et sub fructu 6 mm longis, partibus inferioribus ellipticis; staminoideis sub fructu valde incrassatis.

An erect or somewhat scandent simple suffrutescent plant up to 50 cm high, the younger parts and the nerves and midribs on the lower surface of the leaves distinctly ferruginous-pubescent. Stems somewhat woody, terete, brown when dry, 2 to 2.5 mm in diameter, the younger parts somewhat sulcate or angled. Leaves membranaceous, lanceolate, 15 to 20 cm long, 2.5 to 4 cm wide, equilateral, the base usually obtuse, gradually narrowed upward to the slenderly acuminate apex, the margins coarsely dentate except at the very base, the teeth 5 to 8 mm apart, the upper surface olivaceous, shining, glabrous, smooth, minutely and densely pitted, the pits very shallow, cystoliths entirely wanting; lateral nerves about 30 on each side of the midrib, very distinct on the lower surface, the reticulations lax; petioles ferruginous-pubescent, 5 to 8 mm long; stipules lanceolate, acuminate, glabrous, brown, about 1 cm long. Cymes axillary, solitary, rather dense, about 1 cm in diameter, their peduncles up to 5 mm long, the pedicels less than 1 mm long. Female flowers, in anthesis, 3 mm long, green. Sepals 5, the basal part elliptic, about 1 mm long, somewhat cucullate, all spurred from the back, the spurs slender, about 2 mm long. The sepals in fruit accrescent and including the spur up to 6 mm in length, the spur obscurely ciliate. Staminodes in fruit much thickened, obovate, somewhat 4-angled, truncate, about 1 mm long, and 0.8 mm wide. Achene elliptic-ovate, somewhat compressed, about 2 mm long.

MINDANAO, Bukidnon Subprovince, near Tankulan, *Bur. Sci.* 39137 Ramos & Edaño July 5, 1920. On trees in damp forests at an altitude of about 900 meters.

A very strongly marked species and recognizable by its indumentum and its long, lanceolate, slender, acuminate, equilateral, and coarsely and regularly toothed leaves.

POLYCHROA FERRUGINEA sp. nov.

Frutex vel suffrutex scandens, ramosus, usque ad 50 cm altus, partibus junioribus et subtus foliis ferrugineo-pubescentibus; foliis membranaceis, oblongo-ellipticis ad oblongo-obovatis, 8 ad 14 cm longis, tenuiter acuminatis, basi inaequilateralibus, margine grosse crenatis vel crenato-serratis, nervis utrinque 8 ad 10, perspicuis; cymis axillaribus, circiter 1 cm longis, sublaxis; floribus ♀ 5-meris, sepalis oblongis, 3 mm longis, cucullatis, omnibus corniculatis, accrescentibus, sub fructu 6 mm longis; staminoideis valde incrassatis.

A slender, scandent, more or less branched, somewhat woody vine up to 50 cm long, the stems brown, glabrous or nearly so, terete, the younger parts ferruginous-pubescent with crisped hairs, more or less angled or compressed. Leaves alternate, membranaceous, oblong-elliptic to oblong-obovate, 8 to 14 cm long, 3.5 to 5 cm wide, the apex slenderly acuminate, the base distinctly inequilateral, obtuse, the margins rather coarsely crenate or crenate-serrate, the upper surface olivaceous, shining, usually with numerous short scattered cystoliths, the lower surface brownish and ferruginous-pubescent with crisped hairs on the midrib and lateral nerves, the indumentum less conspicuous on the surface; lateral nerves 8 to 10 on each side of the midrib, rather prominent on the lower surface, slightly curved, the reticulations not prominent; petioles pubescent, 5 to 7 mm long. Cymes axillary, solitary, about 1 cm long, 1 to 1.5 cm wide, shortly peduncled, rather lax, glabrous or slightly pubescent. Female flowers 5-merous, the sepals oblong, 3 mm long, more or less cucullate, all extended into a slender, 3 mm long, acuminate spur, the total length approximating 6 mm in fruit. Achene subellipsoid, about 2 mm long. Staminodes in fruit oblong, much thickened, 4-angled, truncate, about 1 mm long.

MINDANAO, Bukidnon Subprovince, Mount Candoon, *Bur. Sci.* 38781 Ramos & Edaño, July 27, 1920. In forests, altitude about 1,000 meters.

The alliance of this species is manifestly with *Polychroa sinuata* (Blume) (*Procris sinuata* Blume), from which it is distinguished especially by its ferruginous indumentum.

The generic name *Polychroa* Loureiro which dates from 1790 is here adopted in the place of *Pellionia* Gaudich. which dates from 1826. The two are congeneric, the type of Loureiro's genus being *Polychroa repens* Lour., with which the much more recently described *Pellionia daveauana* N. E. Br. (1880) is identical.

MENISPERMACEAE

PYCNARRHENA Miers

PYCNARRHENA MEMBRANIFOLIA sp. nov.

Frutex scandens, inflorescentiis minute pubescentibus exceptis glaber; foliis membranaceis, oblongis, 9 ad 12 cm longis, in siccitate atro-olivaceis, nitidis, tenuiter acuminatis, basi acutis, nervis utrinque 5 vel 6, tenuibus, petiolo 1 ad 2 cm longo; inflorescentiis ♂ cymosis, cymis fasciculatis, e caulis vetustioribus, tenuiter pedunculatis, paucifloris, circiter 3 cm longis, sepalis interioribus 3 vel 4 majoribus, incrassatis, obovatis, rotundatis, concavis, 2.3 mm longis, petalis 3, orbicularis ad obovatis, 1 mm diametro; staminibus circiter 6, obovoideis ad anguste obovoideis, 0.8 mm longis.

A woody vine, glabrous except for the minutely pubescent inflorescences, the branches terete, about 8 mm in diameter, brownish, the leaf-bearing branchlets about 2 mm in diameter, these sometimes solitary, sometimes fascicled. Leaves membranaceous, oblong, dark olivaceous when dry, shining, 9 to 12 cm long, 3 to 4.5 cm wide, slenderly acuminate, base acute; lateral nerves 5 or 6 on each side of the midrib, distant, slender but distinct, anastomosing; petioles 1 to 2 cm long. Staminate inflorescences fascicled on tubercles along the main stems or leafless branches, the cymes about 3 cm long, slenderly peduncled, few-flowered, obscurely pubescent. Flowers yellow, black when dry, their pedicels 4 to 7 mm long, the external sepals small, slightly pubescent, ovate, acuminate, less than 1 mm in length, the next 3 or 4 larger, thickened, obovate, rounded, concave, glabrous, about 2.3 mm long, imbricate. Petals 3, orbicular to obovate, glabrous, about 1 mm in diameter. Stamens 6, narrowly obovoid, 0.8 mm long.

MINDANAO, Zamboanga District, Malangas, *Bur. Sci.* 37536 Ramos & Edaño, October 26, 1919. In forests at low altitudes, locally known as *dalupat*.

This species is radically different from known Philippine representatives of the genus both in its membranaceous leaves and in its lax, few-flowered, slenderly peduncled inflorescences. It is apparently most closely allied to *Pycnarrhena cauliflora* Diels, but differs from that species in numerous characters, especially in its smaller leaves which are acute at the base and slenderly acuminate at the apex, with fewer nerves than in Diels's species. The number cited above was distributed under the generic name *Fibruarea*.

ANONACEAE

GONIOTHALAMUS Hooker f. and Thomson

GONIOTHALAMUS PUNCTICULIFOLIUS sp. nov.

Frutex vel arbor parva, ramis tenuibus, glabris, ramulis leviter adpresse cupreo-pubescentibus; foliis chartaceis, anguste oblongis, 8 ad 12 cm longis, nitidis, glabris vel subtus ad costa leviter pubescentibus, acutis vel leviter acuminatis, basi acutis, subtus minutissime rubro-puncticulatis, nervis utrinque circiter 10, tenuibus, reticulis laxis, obscuris; floribus axillaribus, solitariis, circiter 2 cm longis; sepalis late ovatis, 6 mm longis, leviter cupreo-pubescentibus; petalis valde incrassatis, utrinque pubescentibus, exterioribus 2 cm longis, oblongo-ovatis ad oblongo-lanceolatis, acutis, interioribus conniventibus, oblongo-ovatis, 1.5 cm longis, acutis; carpellis circiter 12, pubescentibus, stylis glabris, quam carpellis duplo longioribus; ovulis paucis.

A subglabrous shrub or small tree, the branches terete, slender, rugose, dark-colored when dry, the very young branchlets and buds sparingly appressed-pubescent with cupreous hairs. Leaves chartaceous, narrowly oblong, 8 to 12 cm long, 2 to 3 cm wide, the upper surface pale-olivaceous, strongly shining, smooth, the lower surface somewhat paler, minutely reddish-puncticulate, glabrous on both surfaces or the midrib beneath sparingly appressed-pubescent, the apex acute to slightly acuminate, the base acute; lateral nerves slender, about 10 on each side of the midrib, not prominent, arched-anastomosing, the reticulations lax, indistinct; petioles about 5 mm long, the younger ones sparingly cupreous-pubescent, in age glabrous. Flowers axillary, solitary, about 2 cm long, yellow, slightly fragrant, their pedicels 1 cm long or less, appressed cupreous-pubescent, subtended by 2 or 3 ovate, obtuse, pubescent, 2-mm long bracts. Sepals broadly ovate, acute to obtuse, about 6 mm long, reticulate in transmitted light, sparingly cupreous-

pubescent. Outer three petals oblong-ovate to oblong-lanceolate, very thick, pubescent on both surfaces, the indumentum soft, cinereous to ferruginous, rather dense on the inner surface, about 2 cm long, 7 to 10 mm wide, narrowed upward to the acute apex; inner three petals connivent, forming a cone surrounding the stamens, oblong-ovate, acute, thickened, pubescent, about 1.5 cm long and 9 mm wide. Stamens indefinite, 2 mm long, truncate. Carpels about 12, oblong-ovoid, 2 mm long, appressed-pubescent, narrowed upward; styles glabrous, twice as long as the carpels; ovules few.

MINDORO, Paluan, *Bur. Sci.* 39660 (type), 39519, 39676 Ramos, April, 1921. In dry forests at low altitudes.

A species in vegetative characters somewhat resembling *Goniothalamus amuyon* (Blanco) Merr., but differing radically in its floral characters. It is well characterized by its minutely puncticulate leaves and its elongated styles.

LAURACEAE

CRYPTOCARYA R. Brown

CRYPTOCARYA EDAÑOI sp. nov.

Arbor, ramulis et inflorescentiis et subtus foliis ad costa nervisque dense ferrugineo-villosis; foliis coriaceis, ovatis ad subellipticis, usque ad 17 cm longis et 12 cm latis, supra, costa excepta, glabris, subolivaceis, minutissime et obscure foveolatis, subtus glaucescentibus, basi plerumque latissime rotundatis, apice abrupte et brevissime apiculato-acuminatis; nervis et reticulis primariis supra impressis, subtus valde perspicuis, nervis utrinque circiter 10; paniculis usque ad 15 cm longis, ramis ramulisque crassis, densissime ferrugineo-villosis, fructibus junioribus oblongo-ellipsoideis, 12 mm longis, nigris, leviter ferrugineo-pubescentibus.

A tree, the branchlets and inflorescences very densely ferruginous-villous, the leaves ferruginous-villous beneath on the midrib, nerves, and reticulations. Ultimate branches up to 7 mm in diameter, pubescent. Leaves coriaceous, the normal ones ovate, those on the younger branchlets subelliptic, 13 to 17 cm long, 7 to 12 cm wide, the upper surface subolivaceous, somewhat shining, glabrous except for the pubescent midrib, minutely and shallowly foveolate, the midrib, nerves, and primary reticulations impressed, the lower surface somewhat glaucous, the midrib, nerves, and reticulations pale brownish, the base usually broadly rounded, the apex abruptly and shortly apiculate-acuminate;

lateral nerves about 10 on each side of the midrib, somewhat curved-anastomosing at the very margin, very prominent on the lower surface as are the reticulations; petioles densely pubescent, about 1 cm long. Panicles terminal, about 15 cm long and with smaller ones in the uppermost axils, all parts densely ferruginous-villous, the branches and branchlets few, thickened, the ultimate branchlets 2 to 3 mm in diameter. Immature fruits oblong-ellipsoid, black when dry, about 12 mm long, obscurely longitudinally sulcate, more or less ferruginous-villous, the indumentum apparently deciduous.

MINDANAO, Zamboanga District, Mount Tubuan, *Bur. Sci.* 36706 Ramos & Edaña, October, 1919. In forests at low altitudes.

CRYPTOCARYA CAGAYANENSIS sp. nov.

Arbor glabra (floribus ignotis); foliis oblongis, coriaceis, 20 ad 25 cm longis, supra olivaceis vel atro-olivaceis, nitidis, subtus glaucescentibus, nervis utrinque circiter 15, perspicuis, reticulis primariis subparallelis; paniculis terminalibus, sub fructu 10 ad 14 cm longis, fructibus ovoideis, 3 cm longis, supra angustatis, obtusis, in siccitate nigris.

A glabrous tree (flowers unknown), the ultimate branches about 4 mm in diameter, brownish or grayish, somewhat rugose and sulcate when dry. Leaves oblong, thickly coriaceous, 20 to 25 cm long, 5.5 to 8 cm wide, the apex shortly and obtusely acuminate, the base broadly acute, the upper surface dark-olivaceous, somewhat shining, smooth, the lower surface more or less glaucous, glabrous, not at all foveolate; lateral nerves about 15 on each side of the midrib, nearly straight, prominent on the lower surface, ascending at an angle of nearly 45°, anastomosing close to the margin, the primary reticulations slender, subparallel; petioles about 2 cm long. Fruiting panicles terminal, 10 to 14 cm long, the branches few, stout, glabrous. Fruits ovoid, narrowed upward to the blunt apex, about 3 cm long, 1.5 to 1.8 cm in diameter, dark brown or nearly black when dry, glabrous, obscurely longitudinally ridged or nearly smooth.

LUZON, Cagayan Province, *For. Bur.* 28440 Ponce, May, 1921. Apparently growing in forests at low altitudes.

A species strongly characterized by its thickly coriaceous, oblong leaves, which are somewhat glaucous beneath, and especially by its unusually large, ovoid fruits, which are about 3 cm in length, rather abruptly narrowed at the base and gradually narrowed upward to the obtuse apex.

LITSEA Lamarck

LITSEA ODORIFERA Valetton in Ic. Bogor. 3 (1909) t. 276.

PALAWAN, Puguiauan, *For. Bur.* 27884 *Cenabre, Baldemor, & Aduviso*, February 5, 1920. On forested ridges, altitude 150 meters, with the Tagbanua name *magtagbak*. Sumatra, Java (introduced), Borneo.

ROSACEAE

RUBUS Linnaeus

RUBUS PERFULVUS sp. nov. § *Malachobatus, Moluccani, Rugosi*.

Species *R. rolfei* affinis differt foliis minoribus, haud lobatis, basi truncatis, haud cordatis, subtus vix foveolatis.

A scandent shrub, the branches glabrous, reddish-brown, aculeate, the aculeae 1 mm long or less, slightly curved, the branchlets densely fulvous-tomentose. Leaves coriaceous, ovate, 6 to 9 cm long, 4 to 7 cm wide, shortly acuminate, base broadly truncate, irregularly toothed, not lobed, the upper surface dark olivaceous brown, glabrous, or when young more or less ciliate-pilose, shining, somewhat rugose, the lower surface very densely fulvous-tomentose, the indumentum obscuring all but the primary reticulations, the midrib and nerves with scattered small spines hidden in the indumentum, base 3-nerved, the primary lateral nerves above the basal pair usually 4 on each side of the midrib, prominent; petioles about 1 cm long, densely fulvous-tomentose and retrorsely aculeate, the aculeae hidden in the indumentum; stipules free, narrowly oblong, entire, deciduous, about 1.5 cm long, 3 mm wide, outside densely tomentose, inside glabrous. Inflorescences terminal, about 5-flowered, the flowers somewhat crowded, large, about 5 in each raceme, often solitary flowers also in the upper axils, the pedicels densely tomentose, 1 cm long or less. Calyx about 13 mm long, the lobes lanceolate, acuminate, densely fulvous-tomentose. Achenes about 3 mm long, somewhat rugose, glabrous, strongly ventricose-curved, the styles about 5 mm long. Fruit red when mature.

MINDANAO, Bukidnon Subprovince, Mount Lipa, *Bur. Sci.* 38566 *Ramos & Edaño*, July, 1920. In the mossy forest, altitude about 2,000 meters.

A very distinct species, among the hitherto described forms most closely allied to *Rubus rolfei* Vid. but very different from that species in its vegetative characters.

RUBUS HETEROSEPALUS sp. nov. § *Malachobatus*, *Moluccani*.

Frutex scandens, ramis et ramulis et subtus foliis densissime subfulvo-tomentosis aculeatisque; foliis suborbicularibus, coriaceis, 5-lobatis, 12 ad 15 cm longis, basi cordatis, apice acutis vel leviter acuminatis, supra rugosis, olivaceis, petiolo 3.5 ad 5 cm longo; stipulis deciduis, liberis, laciniatis: inflorescentiis terminalibus, paniculatis, 15 ad 20 cm longis; floribus confertis, magnis, calycibus 3.5 cm diametro; sepalis 2 lanceolatis, circiter 5 mm latis, acuminatis, integris, 3 obovatis, profunde laciniatis, 10 ad 14 mm latis: bracteolis obovatis, circiter 15 mm longis, usque ad $\frac{1}{2}$ laciniatis, laciniae circiter 15, lineari-lanceolatae.

Scandent, woody, the branches, petioles, and lower surface of the leaves very densely and uniformly tomentose with brownish to fulvous hairs, the branches, branchlets, petioles, midribs, and primary nerves on the lower surface supplied with numerous, rather slender, slightly curved spines, 1.5 to 3 mm in length. Leaves simple, orbicular-ovate in outline, coriaceous, distinctly 5-lobed, the sinuses rather shallow, apex acute or slightly acuminate, base rather deeply cordate, 12 to 15 cm long, 11 to 13 cm wide, the upper surface olivaceous, rugose, the midrib and primary nerves rather densely hirsute, the surface with scattered, similar indumentum; petioles 3.5 to 5 cm long; stipules deciduous, densely pubescent, free, 10 to 14 mm long, lacinate. Inflorescences terminal, 15 to 20 cm long, paniculate, the lower branches about 7 cm long, all parts densely pubescent, the rachis and branches aculeate. Flowers numerous, crowded, the subtending bracteoles obovate, about 15 mm long and wide, divided nearly to the midrib into about 15 linear-lanceolate laciniae. Calyx when spread about 3.5 cm in diameter, the sepals all densely pubescent, two narrow, lanceolate, acuminate, entire, about 1.5 cm long, 5 mm wide below; three obovate, deeply lacinate, about 18 mm long, 10 to 14 mm wide. Petals not seen. Stamens numerous, about 5 mm long, glabrous. Fruit red, the achenes numerous, inequilateral, obovoid, about 4 mm long; style about 5 mm long.

LUZON, Bontoc Subprovince, Mount Polis, *Bur. Sci.* 37609 *Ramos & Edaña*, February 25, 1920. In the mossy forest, altitude about 1,800 meters, with the local name *tukong*.

This was originally identified as *Rubus rolfei* Vid., but is remarkably distinct from that species and from all other described forms in its calyx characters. It resembles Vidal's

species, but is at once distinguished by its aculeate branches, petioles, and leaves, as well as by its rather larger paniculate inflorescences. The most striking character of the present species is found, however, in the sepals which are remarkably dissimilar, two being narrowly lanceolate and entire, the other three being obovate and deeply laciniate.

LEGUMINOSAE

CASSIA Linnaeus

CASSIA MINDANAENSIS sp. nov. § *Chamaecrista*, *Leiocalyx*, *Subcoriaceae*.

Arbor circiter 5 m alta, partibus junioribus leviter adpresse pubescentibus, ramulis circiter 2 mm diametro; foliis 7 ad 10 cm longis, foliolis 20 ad 28, subcoriaceis, inaequilateralibus, oblongis, 1 ad 1.5 cm longis, obtusis apiculatisque, basi rotundatis, glabris, nitidis; floribus supra-axillaribus, fasciculatis vel racemosis, pedicellatis circiter 2 cm diametro, sepalis lanceolatis ad elliptico-lanceolatis, acute acuminatis, 8 mm longis, petalis obovatis, rotundatis, basi cuneatis; leguminis circiter 3 cm longis, 6 mm latis, subglabris, seminibus 3 vel 4.

A tree about 5 m high, the young parts somewhat appressed-pubescent. Branches about 2 mm in diameter, brown, terete, slightly pubescent, ultimately glabrous. Leaves 7 to 10 cm long, the rachis slightly pubescent and with a single conspicuous gland halfway between the lower pair of leaflets and the base of the petiole; leaflets 20 to 28, subcoriaceous, inequilateral, sessile, subolivaceous, ultimately glabrous, the apex obtuse and minutely apiculate, the base rounded, the midrib situated in about the upper one-third of the leaf, the lateral nerves ascending, slender, about 6 on each side of the midrib; stipules linear-lanceolate, acuminate, 3 mm long. Flowers yellow, about 2 cm in diameter, in few-flowered, supra-axillary fascicles or the lower inflorescences racemose, the rachis produced about 5 mm, the inflorescences usually in pairs; bracts about 2 mm long, abruptly linear-lanceolate, and acuminate from a broad base; bracteoles 2, near the apex of the pedicels, linear-lanceolate, acuminate, 2 to 2.5 mm long. Sepals lanceolate to elliptic-lanceolate, sparingly appressed-pubescent, acutely acuminate, about 8 mm long. Petals obovate, 10 mm long, 7 to 8 mm wide, rounded, base cuneate, glabrous. Anthers 4 to 5 mm long, their filaments 1 mm long or less. Ovary and style about 10 mm long, the former appressed-pubescent, about 5-ovulate. Pods thin, narrowly oblong, oblique at both base and apex, slightly

acuminate, sparingly pubescent, obscurely reticulate, about 3 cm long, 6 mm wide, usually with 3 or 4 seeds.

MINDANAO, Davao District, Mount Bulan, *For. Bur.* 28245 *Mataya*, November 23, 1920. Along banks of streams at an altitude of about 40 meters.

This species rather strongly resembles *Cassia polyadenia* DC. of tropical America and is manifestly allied to it, although differing in numerous details.

MUCUNA Adanson

MUCUNA FOVEOLATA sp. nov. § *Zoophthalmum*, *Citta*.

Frutex scandens, partibus junioribus plus minusve adpresse cinereo-pubescentibus, ramulis tenuibus; foliolis membranaceis, ovatis, acuminatis, olivaceis, nitidis, 10 ad 15 cm longis, subtus parce pubescentibus, stipellis linearis, usque ad 5 mm longis; inflorescentiis longissime pedunculatis, pendulis, pedunculo usque ad 80 cm longo, glabro; calycis persistentibus, cinereo-pubescentibus et pilis urentibus instructis; fructibus oblongis, plus minusve ferrugineo-hirsutis, 20 ad 24 cm longis, 5 ad 6 cm latis, 15 cm crassis, apice abrupte et tenuiter acuminatis, profunde foveolatis, foveolis numerosis, rotundatis ad oblongis, 0.5 ad 1.5 cm longis, haud oblique dispositis.

A more or less woody vine, the branches terete, glabrous, reddish-brown or brown when dry, the branchlets slender, nearly black when dry, sparingly pubescent with appressed-cinereous hairs. Petioles 6 to 10 cm long, slightly cinereous-pubescent; stipules narrowly lanceolate, about 3 mm long; leaflets membranaceous, ovate, dark olivaceous when dry, somewhat shining, 10 to 15 cm long, 6 to 8 cm wide, slenderly acuminate, slightly pubescent on the upper surface, ultimately glabrous, the lower surface sparingly pubescent, the terminal one equilateral and subacute at the base, the lateral ones inequilateral, rounded to subacute; stipels linear, up to 5 mm long. Flowers unknown. Peduncles of the infructescences pendulous, up to 80 cm long, glabrous or nearly so. Persistent calyces cinereous-pubescent with long, scattered, appressed, rigid, brown hairs, the tube about 12 mm long, the lobes lanceolate, acuminate, up to 1 cm long. Pods oblong, flattened, 20 to 24 cm long, 5 to 6 cm wide, about 1.5 cm thick, the base subacute, the apex abruptly and slenderly acuminate, the acumen about 1.5 cm long, when young more or less ferruginous-hirsute, at full maturity nearly glabrous, both surfaces irregularly and deeply foveolate throughout, the foveolae rounded to

oblong, 0.5 to 1.5 cm long, up to 1 cm deep. Seeds about 6, flattened, nearly black when dry, orbicular, about 22 mm in diameter.

LUZON, Tayabas Province, Kabibihan, *For. Bur.* 28379 *Mabesa* (type), June, 1918. SAMAR, Tinani, *For. Bur.* 21048 *Sherfesees, Cenabre, & Cortez*, April, 1914. On river banks and along the edges of secondary forests from sea level to an altitude of 200 meters; locally known in Samar as *danipai*.

A remarkably distinct species characterized by its very long-peduncled infructescences and its elongated pods which are not transversely plicate, but very deeply and irregularly foveolate; the central foveolae are mostly rounded or angular in outline, the marginal ones more or less elongated transversely. The species is manifestly allied to *Mucuna nigricans* DC., but is at once distinguishable by its fruit characters.

MUCUNA SAMARENSIS sp. nov.

Frutex scandens, partibus junioribus plus minusve cinereo-hirsutis, inflorescentiis cinereo-pubescentibus et pilis ferrugineis urentibus instructis; foliolis glabris, membranaceis, 11 ad 13 cm longis, oblongo-ovatis ad oblongo-lanceolatis, tenuiter obtuse acuminatis, stipellis linearis, 3 mm longis; inflorescentiis usque ad 40 cm longis, pedunculo 15 cm longo, ramis paucis, usque ad 22 cm longis; floribus atro-purpureis, 6.5 cm longis, pedicellis usque ad 3 cm longis, bracteis oblongo-ellipticis, membranaceis, acuminatis, cinereo-pubescentibus, 3 cm longis et 12 mm latis, bracteolis minoribus, 2.5 cm longis, 8 mm latis, deciduis; calycis late cupulatis, cinereo-pubescentibus, pilis urentibus instructis; petalis glabris; ovario oblongo, 10 mm longo, dense hirsuto.

A more or less woody vine, the younger parts more or less hirsute with appressed-cinereous hairs, the inflorescences cinereous-pubescent and supplied with scattered, stiff, brown, stinging hairs, the branchlets nearly black when dry, about 2 mm in diameter. Petioles 6 to 8 cm long; stipules narrowly lanceolate, about 3 mm long. Leaflets membranaceous, oblong-ovate to oblong-lanceolate, olivaceous, shining, glabrous, 11 to 13 cm long, 4.5 to 6 cm wide, rather slenderly but obtusely acuminate, the terminal ones equilateral, obtuse at the base, the lateral ones distinctly inequilateral and rounded; stipels linear, 3 mm long. Inflorescences up to 40 cm long, the peduncles about 15 cm long, the branches few, 20 to 22 cm long. Flowers purplish-black when dry, about 6.5 cm long, the pedicels

in anthesis about 3 cm long, the buds subsessile or shortly pediceled. Each flower is subtended by an oblong-elliptic, membranaceous, cinereous-pubescent bract which is supplied also with few, scattered, stinging, brown hairs, and is about 3 cm long and 12 mm wide, and by two similar but smaller bracteoles about 2.5 cm long and 8 mm wide, the bracts and bracteoles deciduous. Calyx broadly cup-shaped, cinereous-pubescent with numerous, brown, stinging hairs, the tube about 1 cm long, the upper lobe broadly ovate, obtuse, 4 to 5 mm long, the lower lip 3-lobed, the lobes narrowly lanceolate, acuminate, the two lateral ones 5 to 7 mm long, the middle one up to 1 cm in length. Standard oblong-ovate, obtuse, 4 cm long, 2 cm wide, glabrous; wings oblong, obtuse, 7 cm long, 1.5 cm wide, shortly clawed, the basal auricle oblong, obtuse, 2.5 mm long, somewhat pubescent near the base; keel equaling the wings, 1 cm wide (folded), slightly curved above, acute. Stamens glabrous, all parts free; filaments about 10 mm long. Ovary oblong, 10 mm long, densely hirsute with long hairs; style appressed-hirsute.

SAMAR, Catubig River, *Bur. Sci.* 24341 Ramos, February, 1916. In damp forests along the margins of old clearings at low altitudes; locally known as *malanipai*.

This species belongs in the section *Zoopthalmum* and probably in the subsection *Citta*, although fruiting material is necessary to verify this. Striking characters are its membranaceous, glabrous leaflets; its short-peduncled infructescences; its membranaceous, conspicuous, deciduous bracts and bracteoles; and its purplish-black flowers.

RUTACEAE

EVODIA Forster

EVODIA CONFUSA sp. nov.

Evodia glabra F.-Vill. Novis. App. (1880) 34; Vidal Rev. Pl. Vasc. Filip. (1886) 74; Merr. in Philip. Journ. Sci. 1 (1906) Suppl. 68, Sp. Blancoanae (1918) 293, non Blume.

Arbor 5 ad 10 m alta, inflorescentiis exceptis glabra; ramulis incrassatis; foliis 3-foliolatis, foliolis oblongo-ellipticis ad obovatis, coriaceis vel subcoriaceis, nitidis, 15 ad 25 cm longis, breviter acuminatis, basi acutis, subtus punctatis, nervis utrinque 12 ad 15, perspicuis; cymis axillaribus, 10 ad 15 cm longis, usque ad 15 cm latis, pedunculatis, multifloris; floribus albidis; fructibus circiter 1 cm diametro, 4-coccis, coccis subovoideis, leviter compressis.

A tree, 5 to 10 m high, glabrous or nearly so except the cinereous-pubescent inflorescences. Branches usually grayish, the branchlets stout, more or less compressed. Leaves 3-foliate, their petioles 5 to 10 cm long; leaflets coriaceous or subcoriaceous, in general oblong-elliptic to obovate, 15 to 25 cm long, 6 to 12 cm wide, apex somewhat acuminate, base acute, shining, lower surface punctate, both surfaces usually greenish-olivaceous when dry; lateral nerves 12 to 15 on each side of the midrib, prominent; petiolules 0.5 to 1.5 cm long. Inflorescences axillary, peduncled, many-flowered, more or less cinereous-pubescent, 10 to 15 cm long, up to 15 cm wide, the peduncles 3 to 9 cm long. Flowers white, their pedicels 2 to 3 mm long, slightly pubescent. Sepals 4, oblong to obovate, obtuse, somewhat pubescent, about 1 mm long. Petals elliptic, glabrous, 2.5 mm long. Stamens 4; filaments 3 mm long. Fruits about 1 cm in diameter, of 4 subovoid, somewhat compressed cocci.

This species, long confused with *Evodia glabra* Blume, chiefly on account of the erroneous identification of *Cuming* 1745 with Blume's species, is found from northern Luzon to Mindanao, and apparently also in Celebes (*Koorders* 18758, erroneously identified as *Evodia minahassae* Teysm. & Binn.). It is represented by very numerous specimens, as follows:

LUZON, Cagayan Province, *For. Bur.* 23311, 24850 *Velasco*, 11267 *Klemme*, 17052 *Curran*, *Bur. Sci.* 7501 *Ramos*: Bontoc Subprovince, *Bur. Sci.* 18399 *Alvarez*: Bataan Province, *For. Bur.* 24190 *Alambra & Bawan*, 2947, 3045 *Borden*: Rizal Province, *Merrill* 1887, 1672, 3832, *Sp. Blancoanae* 904, *For. Bur.* 3072 *Ahern's collector*, *Loher* 5146: Laguna Province, *For. Bur.* 25686 *Amarillas*, 20407 *Villamil*, 22253 *Mariano*, *Bur. Sci.* 15055 *Ramos* (type), *Elmer* 17645a: Tayabas Province, *Merrill* 1109, *For. Bur.* 25555 *Vargas*, *Whitford* 664, *For. Bur.* 10487 *Curran*: Camarines Province, *Bur. Sci.* 33566 *Ramos & Edaño*, *Merrill Phil. Pl.* 1535, *For. Bur.* 21466, 23705, 23758 *Alvarez*, 25529 *Cenabre*, 24794 *Lomuntad*. POLILLO, *Bur. Sci.* 10326 *McGregor*, 9129, 9228 *Robinson*. MINDORO, *Whitford* 1448, *Merrill* 2369. SAMAR, *For. Bur.* 25766 *Acuña & Madrid*, *Piper* 363. LEYTE, *Cuming* 1745, *Wenzel* 154, 401, 694, *Elmer* 7375. PANAY, *Bur. Sci.* 31164 *Ramos & Edaño*, *For. Bur.* 23562 *Vergara*. SIARGAO, *Bur. Sci.* 34868, 35008 *Ramos & Pascasio*. MINDANAO, Surigao Province, *Piper* 332: Zamboanga District, *Bur. Sci.* 36999 *Ramos & Edaño*: Agusan Subprovince,

Elmer 13519. Often common in forests at low and medium altitudes.

This species closely resembles material from the Malay Peninsula identified as *Evodia latifolia* DC. which I do not think can be referred to de Candolle's species which was based wholly on *Ampacus latifolia* Rumph. Herb. Amb. 2: 186, t. 61, a species with membranaceous pubescent leaves and in all probability identified with Miquel's conception of the species as redescribed by him from Halmahera specimens.² *Evodia glabra* Blume is remote from the present species and is identical with *E. aromatica* Blume, which in turn is scarcely distinct from *E. lunur-ankenda* (Gaertn.) Merr.

MELIACEAE

AGLAIA Loureiro

AGLAIA CUPREO-LEPIDOTA sp. nov. § *Euaglaia*.

Arbor parva, partibus junioribus dense cupreo-lepidotis, ramis glabris, lenticellatis, teretibus, ramulis ultimis 2 mm diametro; foliis 12 ad 17 cm longis, 5-foliolatis, alternis, foliolis chartaceis ad subcoriaceis, elliptico-ovatis, 5 ad 8 cm longis, breviter obtuse acuminatis, basi acuminatis vel acutis, supra glabris, pallide olivaceis, utrinque puncticulatis, subtus parcissime cupreo-lepidotis, vetustioribus glabris; paniculis axillaribus, dense cupreo-lepidotis, circiter 4 cm longis, petiolo subaequantibus; floribus racemose dispositis, 5-meris, calycis dense cupreo-lepidotis, lobis late ovatis, rotundatis, 1 mm diametro; petalis liberis, glabris, 2 mm longis; tubo glabro, cupulato, truncato, 1.2 mm diametro; antheris 5, inclusis.

A small tree, the younger parts densely cupreous-lepidote, the branches terete, glabrous, pale-brownish, somewhat lenticellate, the ultimate branchlets about 2 mm in diameter. Leaves pinnate, 12 to 17 cm long, 5-foliolate, the petioles and rachis lepidote; leaflets opposite, chartaceous to subcoriaceous, elliptic-ovate, pale-olivaceous and shining when dry, 5 to 8 cm long, 2.5 to 3.5 cm wide, the apex rather abruptly and obtusely acuminate, the base acuminate or acute, the upper surface smooth, glabrous, both surfaces minutely punctulate, the lower surface sparingly cupreous-lepidote especially near the midrib and nerves, ultimately glabrous; lateral nerves about 7 on each side of the midrib, slender; petiolules lepidote, 5 to 10 mm long. Panicles axillary, solitary, about 4 cm long, branched from near

² Ann. Mus. Bot. Lugd.-Bat. 3 (1867) 244.

the base, the lower branches up to 3 cm in length, spreading, all parts densely cupreous-lepidote. Flowers yellow, 5-merous, comparatively few, racemosely arranged on the ultimate branchlets, the buds obovoid, the pedicels 1 to 1.5 mm long. Calyx densely lepidote, the lobes 5, broadly ovate, rounded, 1 mm in diameter. Petals glabrous, free, ovate to elliptic-ovate, 2 mm long. Staminal tube free, glabrous, cup-shaped, 1.2 mm in diameter, truncate, the anthers 5, inserted below the rim, included.

MINDORO, Paluan, *Bur. Sci.* 39579 (type), 39758 Ramos, April, 1921. In dry primary forests at low altitudes.

In its punctulate leaves this species resembles *Aglaia pyriformis* Merr. and *A. robinsonii* Merr., but is not at all allied to these species. Its true alliance appears to be with *Aglaia denticulata* Turcz., from which it is at once distinguished by its short panicles which do not exceed the petioles in length.

DICHAPETALACEAE

DICHAPETALUM Thouars

DICHAPETALUM EUPHLEBIUM sp. nov.

Frutex scandens, ramis glabris, lenticellatis, ramulis adpresse pubescentibus; foliis membranaceis vel chartaceis, viridis, nitidis, oblongis ad oblongo-ellipticis, 9 ad 13 cm longis, acuminatis, nervis utrinque 5 vel 6, subtus valde perspicuis; cymis axillaribus, brevibus, paucifloris, pedunculo 3 ad 5 mm longo; petalis oblongis, obtusis, 2 mm longis, integris; fructibus obovoideis, dense pubescentibus, apice leviter retusis.

A scandent shrub, the branches glabrous, lenticellate, the branchlets appressed-pubescent with short, dirty-brown hairs. Leaves membranaceous to chartaceous, oblong to oblong-elliptic, green when dry, somewhat shining, 9 to 13 cm long, 3 to 5 cm wide, the base acute to obtuse, the apex distinctly acuminate, the upper surface glabrous, the lower surface somewhat appressed-pubescent on the midrib and nerves, ultimately nearly glabrous; lateral nerves 5 or 6 on each side of the midrib, very prominent on the lower surface, curved-ascending, prominent, anastomosing, the reticulations lax, very distinct; petioles about 5 mm long, appressed-pubescent. Inflorescences axillary, solitary, cymose, few-flowered, the peduncles 3 to 5 mm long, appressed-pubescent, rather stout, the pedicels 1.5 to 2 mm long; bracteoles narrowly oblong to linear-oblong, up to 2 mm long. Sepals oblong to oblong-elliptic, obtuse, 2 mm long, pubescent. Petals glabrous, oblong, obtuse, not cleft at the apex, 2

mm long. Filaments 2 mm long, glabrous, base thick, attenuate upward. Immature fruits densely pubescent, obovoid, the apex somewhat retuse, about 8 mm long, normally 2-celled.

MINDANAO, Zamboanga District, Malangas and Mount Tubuan, *Bur. Sci.* 37284 (type), 36702 Ramos & Edaño, October, 1919. In secondary forests at low altitudes.

A species closely allied to *Dichapetalum holopetalum* Merr., from which it is distinguished especially by its glabrous, not ciliate branches, and otherwise by its scanty, very different indumentum, in the present species the nerves, branches, etc., being merely appressed-pubescent with short hairs, while in *Dichapetalum holopetalum* the hairs are elongated and spreading.

EUPHORBIACEAE

CROTON Linnaeus

CROTON LANCILIMBUS sp. nov.

Frutex circiter 1 m altus, partibus junioribus plus minusve lepidotis; foliis numerosis, anguste lanceolatis, membranaceis, 10 ad 15 cm longis, 1 ad 1.5 cm latis, in siccitate pallidis, basi plerumque cuneatis, apice tenuiter caudato-acuminatis, supra glabris, subtus minute stellato-lepidotis, nervis utrinque circiter 10, tenuibus, petiolo 3 ad 5 mm longo; infructescentiis tenuibus, circiter 4 cm longis, lepidotis, capsulis paucis, circiter 6 mm diametro, brunneo-lepidotis, stylis 3 mm longis, trifidis.

A shrub about 1 m high, the younger parts and the lower surface of the leaves more or less lepidote, branches terete, rather slender, glabrous, the branchlets rather densely lepidote with dark-brown, minute scales. Leaves narrowly lanceolate, membranaceous, 10 to 15 cm long, 1 to 1.5 cm wide, pale when dry, subequally narrowed to the cuneate or abruptly obtuse base and to the slenderly caudate-acuminate apex, the upper surface glabrous, shining, the lower surface supplied with scattered, minute, white, shining, stellate scales which are closely appressed to the surface; lateral nerves very slender, about 10 on each side of the midrib, distant, anastomosing; petioles 3 to 5 mm long, biglandular at the apex. Infructescences in the uppermost axils or terminal, simple, slender, about 4 cm long, lepidote, the capsules few, about 6 mm in diameter, brown-lepidote, the persistent styles about 3 mm long, trifid.

MINDANAO, Zamboanga District, Malangas, *Bur. Sci.* 36855 (type), 37078 Ramos & Edaño, October, 1919. Along the banks of rivers at low altitudes.

A species strongly characterized by its very narrow, slender, caudate-acuminate, thin leaves, which are supplied on the lower surface with rather numerous, scattered, white, shining, stellate scales which do not, however, form a continuous covering.

TRIGONOSTEMON Blume

TRIGONOSTEMON ANGUSTIFOLIUS sp. nov. § *Eutrigonostemon*.

Frutex dioicus, 1 ad 3 m altus, partibus junioribus plus minusve pubescentibus; foliis lanceolatis, integris, chartaceis, 12 ad 20 cm longis, 2.5 ad 4 cm latis, utrinque subaequaliter angustatis, basi plerumque cuneatis, apice tenuiter acuminatis, nervis utrinque 9 ad 11, subtus perspicuis, petiolo 5 ad 15 mm longo; inflorescentiis ♀ axillaribus, tenuibus, circiter 6 cm longis, spicatis vel subracemosis, bracteis lanceolatis, 8 ad 14 mm longis; floribus paucis, calycis eglandulosis, lobis lanceolatis, acuminatis, 6 mm longis, petalis oblongis, glabris, atro-purpureis, 5 ad 6 mm longis; capsulis depresso-globosis, 12 mm diametro, leviter adpresse pubescentibus, sepalis accrescentibus, persistentibus, usque ad 12 mm longis et 6 mm latis.

A dioecious shrub, 1 to 3 m high, the younger parts more or less pubescent, branches terete, glabrous, grayish. Leaves lanceolate, entire, chartaceous, 12 to 20 cm long, 2.5 to 4 cm wide, subequally narrowed to the usually cuneate base and to the rather slenderly acuminate apex, the acumen blunt, the upper surface dark olivaceous, slightly shining, glabrous, smooth, the lower surface usually brownish, sparingly pubescent along the midrib; lateral nerves 9 to 11 on each side of the midrib, prominent on the lower surface, distant, arched-anastomosing, the reticulations lax, often rather distinct; petioles somewhat pubescent, 5 to 15 mm long. Pistillate inflorescences axillary, slender, simple, up to 6 cm long, spicate or subracemose, pubescent, few-flowered, the bracts lanceolate, 8 to 14 mm long, 2.5 to 3 mm wide, slightly pubescent, sometimes more or less falcate. Sepals eglandular, lanceolate, acuminate, slightly pubescent, 6 mm long, 2.5 mm wide. Petals glabrous, dark purple, 5 to 6 mm long. Ovary glabrous; styles 3, cleft nearly to the base, the style-arms linear, acuminate, 1.5 mm long. Capsules depressed-globose, about 12 mm in diameter, brown, composed of 3 cocci, sparingly appressed-pubescent, the sepals accrescent in fruit and up to 12 mm long and 6 mm wide.

MINDANAO, Zamboanga District, Malangas, *Bur. Sci.* 36764.

(type) 36560 Ramos & Edaño, October, 1919. On forested slopes at low altitudes, with the local name *pululi*.

A species well characterized by its narrow, lanceolate, rather slenderly acuminate leaves.

CYCLOSTEMON Blume

CYCLOSTEMON BAWANII sp. nov.

Arbor circiter 15 m alta, floribus et fructibus exceptis glabra; foliis oblongis, integris, coriaceis, nitidis, pallide olivaceis, 10 ad 14 cm longis, basi plus minusve decurrento-acuminatis, leviter inaequilateralibus, apice obtuse acuminatis, nervis utrinque circiter 8, tenuibus; floribus ♂ axillaribus, fasciculatis, pedicellatis, pedicellis 6 ad 8 mm longis; sepalis 4, obovatis, circiter 7 mm longis, exterioribus leviter, interioribus dense pubescentibus; staminibus circiter 15; fructibus ellipsoideis, brunneis, solitariis, leviter adpresse pubescentibus, 1.5 cm longis, obtusis, 2-locellatis, pericarpio fragile.

A tree about 15 m high, glabrous except the flowers and fruits, branches and branchlets pale brown or straw-colored when dry. Leaves oblong, entire, coriaceous, shining, pale olivaceous or somewhat brownish when dry, 10 to 14 cm long, 2.5 to 5 cm wide, narrowed below to the somewhat decurrent-acuminate and slightly inequilateral base, and above to the blunt-acuminate apex; lateral nerves about 8 on each side of the midrib, slender, slightly projecting on the lower surface, and somewhat curved, the reticulations rather distinct; petioles about 1 cm long. Staminate flowers axillary, fascicled, white, fragrant, their pedicels slightly pubescent, 6 to 8 mm long. Sepals 4, obovate, about 7 mm long, the two outer ones slightly pubescent, the two inner ones densely and uniformly pubescent with short, pale-brownish hairs. Stamens about 15, the filaments 2 to 2.5 mm long, glabrous. Anthers oblong-ovate, 2.2 mm long. Fruits solitary, ellipsoid, pale brown and slightly verrucose when dry, sparingly appressed-pubescent, about 1.5 cm long, 1 cm wide, obtuse, 2-celled, but often only one seed developing, the pericarp rather thin, brittle; pedicels about 5 mm long, slightly pubescent.

LUZON, Tayabas Province, Atimonan, *For. Bur.* 25357 Bawan, April 12, 1916, in fruit (type); Unisan, *For. Bur.* 25034 Bawan, February 15, 1916, with staminate flowers. In forests along streams and on slopes, altitudes 100 to 300 meters.

The alliance of this species seems to be with *Cyclostemon mindanaensis* Merr., from which it is distinguished by its smaller, differently shaped fruits.

CYCLOSTEMON OLIGOPHLEBIUM sp. nov.

Arbor glabra; foliis chartaceis, oblongo-ovatis ad ellipticis, 8 ad 12 cm longis, integris, in siccitate pallide olivaceis, basi acutis ad rotundatis, equilateralibus vel leviter inaequalateralibus, apice tenuiter acuminatis, nervis utrinque circiter 5, perspicuis; floribus ♀ axillaribus, solitariis, breviter (2 mm) pedicellatis, sepalis late ovatis, rotundatis, 5 ad 6 mm longis, leviter pubescentibus, ovario pubescente; fructibus globosis, glabris, circiter 2.5 cm diametro, 2-locellatis, pericarpio fragile, seminibus 2, plano-convexis, ellipticis, 1.3 cm longis.

A glabrous tree, 8 to 12 m high, the branches and branchlets grayish, slender. Leaves chartaceous, oblong-ovate to elliptic, 8 to 12 cm long, 3.5 to 6 cm wide, pale olivaceous and slightly shining when dry, entire, the base acute to rounded, equilateral or slightly inequilateral, the apex rather slenderly acuminate; lateral nerves about 5 on each side of the midrib, slender, curved, anastomosing, distinct on the lower surface as are the lax reticulations; petioles 5 to 8 mm long. Pistillate flowers solitary, axillary, their pedicels about 2 mm long, glabrous. Sepals 4, broadly ovate, rounded, 5 to 6 mm long, slightly pubescent. Ovary globose, pubescent, 4 mm in diameter, the stigma broadly 2-lobed, the lobes reniform, about 2 mm wide. Fruits globose, glabrous, about 2.5 cm in diameter, 2-celled, 2-seeded, brown when dry, brittle. Seeds plano-convex, elliptic, about 1.3 cm long.

MINDORO, Bongabong River, *For. Bur.* 4036 Merritt, March 28, 1906 (type), *For. Bur.* 12210 Rosenbluth, May 21, 1908. In forests at low altitudes, with the local name *bato-bato*.

A species probably as closely allied to *Cyclostemon microphyllus* Merr. as any other described form, apparently well characterized by its few-nerved leaves.

HOMALANTHUS Jussieu**HOMALANTHUS CONCOLOR** sp. nov. § *Monosepali*.

Frutex glaber; foliis orbiculari-ovatis, obscure obtuseque acuminatis, basi late rotundatis, peltatis, subtus perspicue biglandulosus, olivaceis, nitidis, utrinque concoloribus, 5 ad 7 cm longis; floribus ♂ numerosis, bracteis biglandulosus, unifloris, staminibus circiter 30; fructibus circiter 5 mm diametro.

An entirely glabrous monoecious shrub, the branches and branchlets brownish olivaceous, smooth. Leaves peltate, orbicular-ovate, chartaceous, 5 to 7 cm long, shining, olivaceous and of the same color on both surfaces, apex broadly rounded,

the petioles 3 to 6 cm long, inserted 0.3 to 1 cm from the margin and with two conspicuous glands at the juncture with the lamina; lateral nerves 6 to 8 on each side of the midrib, conspicuous. Inflorescences up to 10 cm long. Staminate flowers numerous, about 1.5 mm in diameter, their pedicels up to 3 mm long, the bracts small, entire, 1-flowered, each with two conspicuous contiguous glands; sepal 1, orbicular-reniform, about 1 mm in diameter; stamens about 30, the anthers subsessile, minutely papillate. Fruits 8 to 10 at the base of the inflorescence, subglobose, about 5 mm in diameter, their pedicels about 4 mm long; styles very early deciduous, not seen.

MINDANAO, Bukidnon Subprovince, near Tankulan, *Bur. Sci.* 39166 Ramos & Edaño, July, 1920, with the local name *labagti*. Habitat not recorded, altitude indicated as about 1,000 meters.

ALCHORNEA Swartz

ALCHORNEA PUBESCENS sp. nov. § *Cladodes*.

Species *A. rugosae* affinis, differt ramulis et infructescentiis et subtus foliis molliter subferrugineo-villosis, foliis caudato-acuminatis, nervis magis numerosis, utrinque circiter 15.

A shrub about 3 m high, the branchlets, inflorescences, and lower surface of the leaves softly subferruginous-villous, the indumentum often dense. Leaves oblanceolate, 17 to 25 cm long, 3 to 6 cm wide, slenderly caudate-acuminate, the acumen often falcate, narrowed below to the abruptly auriculate-cordate base, the margins distantly glandular-toothed, the upper surface glabrous except for the slightly hirsute midrib, olivaceous, the base with 1 or 2 conspicuous glands and usually with 1 or 2 similar glands between each pair of nerves in the lower one-half to two-thirds; lateral nerves about 15 on each side of the midrib, prominent, curved, arched-anastomosing, the primary reticulations also prominent; petioles densely pubescent, about 5 mm long; stipules linear, pubescent, 7 to 10 mm long. Pistillate inflorescences terminal or subterminal, more or less pubescent, spiciform, 7 to 10 cm long, each flower subtended by a pair of conspicuous glands. Fruits depressed-globose, about 9 mm wide, pubescent, the style arms 3, slightly pubescent, about 5 mm long.

LUZON, Cagayan Province, Peñablanca, *For. Bur.* 22724 Castillo, April 23, 1915. On slopes at low altitudes.

A species very similar and manifestly closely allied to *Alchornea rugosa* Muell.-Arg., from which it differs in its softly

villous branchlets and lower surface of the leaves and in its slenderly caudate-acuminate leaves which are more numerously nerved than in the latter species.

CLEISTANTHUS Hooker f.

CLEISTANTHUS BARROSII sp. nov. § *Ferruginosi*.

Arbor circiter 8 m alta, ramulis et petiolis et subtus foliis ad costa nervisque ferrugineo-pubescentibus; foliis chartaceis, olivaceis, nitidis, oblongo-ovatis ad oblongo-ellipticis, 14 ad 20 cm longis, 5 ad 8 cm latis, acuminatis, basi acutis, nervis utrinque circiter 8, perspicuis; fasciculis ferrugineo-pubescentibus, calycis tubo 1.4 mm longo, lobis oblongo-lanceolatis, acuminatis, tubo aequantibus, petalis obovatis, circiter 1 mm longis; fructibus obovoideis, 8 ad 10 mm longis, retusis, junioribus parce ferrugineo-villosis, vetustioribus glabris vel subglabris.

A tree about 8 m high, the branchlets, petioles, and midribs and nerves on the lower surface of the leaves rather densely ferruginous-pubescent. Branches terete, smooth, glabrous, 3 to 4 mm in diameter, grayish or brownish when dry. Leaves oblong-ovate to oblong-elliptic, 14 to 20 cm long, 5 to 8 cm wide, chartaceous, olivaceous, somewhat shining, distinctly acuminate, base acute, the upper surface entirely glabrous; lateral nerves about 8 on each side of the midrib, prominent, ascending, the reticulations distinct; petioles about 1 cm long. Fascicles axillary, densely ferruginous-pubescent, the bracts broadly ovate, slightly acuminate, about 3 mm long. Pistillate calyx appressed-pubescent, the tube about 1.4 mm long, the lobes oblong-lanceolate, somewhat acuminate, about as long as the tube. Petals obovate, 1 mm long or less. Fruits reddish-yellow when fresh, dark-brown when dry, distinctly stipitate, ellipsoid or obovoid, retuse, 8 to 10 mm long, the younger ones sparingly ferruginous-villous, in age glabrous or nearly so.

LUZON, Isabela Province, Ilagan, *For. Bur.* 26070 Barros, June 23, 1916. In primary forests on slopes at an altitude of about 200 meters.

A species belonging in the section *Ferruginosi* and apparently most closely allied to *Cleistanthus rufescens* Jabl.

CLEIDION Blume

CLEIDION RAMOSII (Merr.) comb. nov.

- Mallotus ramosii* Merr. in Philip. Journ. Sci. 7 (1912) Bot. 401;
Pax & Hoffm. in Engl. Pflanzenreich 63 (1914) 195.
Mallotus samarensis Merr. op. cit. 9 (1914) 488; Pax & Hoffm. op. cit.
68 (1919) 18.

MINDORO, Mount Calavite, *Bur. Sci.* 39395, 39408 Ramos. SAMAR, *Bur. Sci.* 17480 Ramos. CAMIGUIN DE MISAMIS, *Bur. Sci.* 14602 Ramos. SIARGAO, *Bur. Sci.* 35031, 34829 Ramos. In forests at low and medium altitudes, ascending to 1,000 meters.

Additional material shows that the two species described by me can scarcely be maintained as distinct, and further that the species belongs in *Cleidion* rather than in *Mallotus*, although the connectives are scarcely produced. The leaves are eglandular, the staminate inflorescences are simply spicate, while the capsules are glabrous, unarmed, and eglandular. The plant is monoecious, the pistillate inflorescences being racemose, few-flowered (sometimes only 1-flowered) and 4 to 12 cm long. The capsules are composed of 3, dehiscent, glabrous cocci, and are about 8 mm in diameter. Seeds mottled.

ANACARDIACEAE

MANGIFERA Linnaeus

MANGIFERA PARVIFOLIA sp. nov.

Arbor, inflorescentiis exceptis glabra; foliis subcoriaceis, oblongo-ovatis, 5 ad 10 cm longis, utrinque subaequaliter angustatis, acuminatis, basi acutis, nervis utrinque circiter 10, distinctis, paniculis pubescentibus, 4 ad 9 cm longis; floribus 4-meris, sepalis glabris, 2.5 mm longis, petalis subellipticis, obtusis, 3.5 mm longis, deorsum perspicue 3-costatis, costae confluentibus, sursum tenuibus, evanescentibus; staminibus fertilibus 1, staminoideis 3, minutis; fructibus junioribus ellipsoideis, 2 cm longis, seminibus laevis. Species *M. monandrae* Merr. affinis.

A tree up to 20 m high, glabrous except the inflorescences. Leaves subcoriaceous, oblong-ovate, rather pale when dry, 5 to 10 cm long, 2 to 3 cm wide, subequally narrowed to the acute or somewhat decurrent base and to the distinctly acuminate apex; lateral nerves about 10 on each side of the midrib, slender, distinct, projecting on both surfaces, the reticulations rather distinct; petioles 1.5 to 2.5 cm long. Panicles terminal, pubescent, 4 to 9 cm long. Flowers white, 4-merous. Sepals oblong-ovate to oblong-lanceolate, obtuse, glabrous, about 2.5 mm long. Petals elliptic to oblong-elliptic, obtuse, 3.5 mm long, prominently 3-costate in the lower half, the costae confluent below, attenuate in the upper half and not reaching the margins and with two lateral, slender nerves which are not thickened into distinct ridges in the lower part. Disk thick, 4-lobed, wider than the

ovary. Ovary ovoid, inequilateral, glabrous. Fertile stamen 1, the filament 3 mm long; staminodes 3, very slender, 0.5 mm long or less. Immature fruits ellipsoid, 2 cm long, glabrous, the seed compressed and apparently smooth.

LUZON, Zambales Province, Masinloc, *Merrill 2946*, May, 1903, *For. Bur. 27169 Maneja & Bawan* (type), May, 1918. To this species I also refer *For. Bur. 25497 Cruz* from Lanao District, Mindanao, although this specimen differs from the type in its very slenderly acuminate leaves.

Among the Philippine species the present one is most closely allied to *Mangifera monandra* Merr., from which it is distinguished by its much smaller leaves, smaller flowers, and pubescent inflorescences. It belongs in the group with *M. quadrifida* Jack.

CELASTRACEAE

LOPHOPETALUM Wight

LOPHOPETALUM PAUCINERVIUM sp. nov.

Arbor glabra, circiter 10 m alta; foliis coriaceis, oblongo-ellipticis, 10 ad 16 cm longis, integris, breviter obtuse acuminatis, basi rotundatis ad late acutis, in siccitate brunneo-olivaceis, subtus pallidioribus, nervis utrinque 5 vel 6, curvato-ascendentibus, perspicuis; paniculis axillaribus terminalibusque, 12 ad 15 cm longis; floribus circiter 7 mm diametro, calycis 5-angulatis, lobis brevissimis, acutis, petalis ovatis, obtusis, 3 mm longis, longitudinaliter cristatis, junioribus apice leviter fimbriatis, vetustioribus integris.

An entirely glabrous tree about 10 m high, the branches and branchlets purplish-black when dry, somewhat rugose. Leaves coriaceous, oblong-elliptic, entire or the margins obscurely undulate, 10 to 16 cm long, 5 to 8 cm wide, the apex with a broad, short, obtuse acumen, the base rounded to broadly acute, the upper surface when dry brownish-olivaceous, the lower paler; lateral nerves 5 or 6 on each side of the midrib, curved-ascending, obscurely anastomosing, prominent on the lower surface, the reticulations slender; petioles 1 to 2 cm long. Panicles axillary and terminal, 12 to 15 cm long. Flowers white, about 7 mm in diameter, their pedicels up to 4 mm long, the bracteoles lanceolate, acuminate, about 0.6 mm long. Calyx about 4 mm in diameter, 5-angled, the lobes short, acute. Petals ovate, obtuse, 3 mm long, the younger ones slightly fimbriate at their apices, the older ones entire, longitudinally cristate on the inner face.

Filaments 2 mm long; anthers 1.2 mm in length. Disk 5-angled, filling the shallow calyx tube, about 4 mm in diameter.

MINDANAO, Bukidnon Subprovince, near Tankulan, *Bur. Sci.* 39136 Ramos & Edaña, July, 1920. In damp forests at an altitude of about 900 meters.

The second species of the genus to be found in the Philippines, readily distinguishable from *Lophopetalum toxicum* Loher by its few-nerved leaves.

SABIACEAE

MELIOSMA Blume

MELIOSMA BONTOCENSIS sp. nov.

Frutex vel arbor parva, inflorescentiis exceptis glabra; foliis simplicibus, subellipticis, coriaceis, nitidis, integris, 5 ad 10 cm longis, obtusis ad rotundatis vel brevissime subapiculato-acuminatis, basi acutis, nervis utrinque circiter 8, supra impressis, subtus valde perspicuis, petiolo 1.2 ad 2 cm longo; paniculis 10 ad 12 cm longis, multifloris, partibus junioribus perspicue ferrugineo-pubescentibus; floribus confertis, petalis glabris, exterioribus orbicularis, 2.5 mm diametro, sepalis bracteolisque minoribus, margine leviter ciliatis. Species *M. vulcanicae* Merr. affinis.

A shrub or small tree, glabrous except the inflorescences, the ultimate branches about 4 mm in diameter. Leaves simple, subelliptic, coriaceous, 5 to 10 cm long, 3.5 to 5 cm wide, brownish-olivaceous and more or less shining when dry, the lower surface paler than the upper, the midrib and nerves very dark brown in contrast to the paler surface, the apex obtuse to rounded or very shortly subapiculate, the base acute, the margins entire; lateral nerves about 8 on each side of the midrib, more or less impressed on the upper surface, very prominent on the lower surface, anastomosing, the reticulations distinct; petioles 1.2 to 2 cm long. Panicles 10 to 12 cm long, the younger parts ferruginous-pubescent, the older parts glabrous or nearly so, the primary branches 3 to 6 cm long. Flowers yellow when fresh, crowded, sessile. Sepals 5, brown, orbicular to orbicular-ovate, rounded, 1.8 mm in diameter, the margins somewhat ciliate, the calyx subtended by 2 or 3 bracteoles similar to the sepals but smaller in size. Outer three petals imbricate, glabrous, orbicular to obovate, concave, about 2.5 mm in diameter, the inner two oblong-obovate to spatulate, thin, entire, free, about 1.8 mm long. Filaments of the fertile stamens 1 mm long. Sterile stamens

suborbicular, bifid, 1 to 1.2 mm in diameter. Ovary oblong-ovoid, glabrous, about 1 mm long. Disk thin, truncate, 0.5 mm high.

LUZON, Bontoc Subprovince, Mount Pukis, *Bur. Sci.* 37756 Ramos & Edaño, March 11, 1920. In the mossy forest, altitude about 1,900 meters.

A species closely allied to *Meliosma vulcanica* Merr. but with thicker leaves which are rounded to obtuse or merely apiculate, not acuminate at the apex, shorter petioles, and more conspicuous lateral nerves which are usually more or less impressed on the upper surface.

SAPINDACEAE

GUIOA Cavanilles

GUIOA MINDORENSIS sp. nov.

Frutex subglaber, ramulis junioribus leviter adpresse pubescentibus; foliis circiter 12 cm longis, rhachibus glabris, sursum anguste alatis vel carinatis, foliolis plerumque 7, oblongo-ellipticis ad oblongo-lanceolatis, subcoriaceis, 5 ad 7 cm longis, subtus parcissime pubescentibus, apice obtuse acuminatis, basi decurrento-acuminatis, plerumque inaequilateralibus, nervis utrinque circiter 6, subtus cum reticulis perspicuis; infructescentiis axillaribus, paniculatis, circiter 6 cm longis; sepalis ovatis, 2 mm longis, margine ciliatis; fructibus late obovatis, retusis, glabris, 1 cm longis latisque.

A nearly glabrous shrub about 4 m high, the branches terete, dark-colored when dry, the very young branchlets obscurely appressed-pubescent. Leaves about 12 cm long, the petiole and rachis glabrous, the rachis in the upper part very narrowly winged or carinate; leaflets usually 7, oblong-elliptic to oblong-lanceolate, subcoriaceous, 5 to 7 cm long, 1.3 to 2 cm wide, the upper surface olivaceous, smooth, glabrous or slightly pubescent along the midrib, the lower surface paler, glabrous or with very few, widely scattered, short hairs, narrowed above to the obtusely acuminate apex and below to the usually inequilateral and decurrent-acuminate base; lateral nerves about 6 on each side of the midrib, prominent on the lower surface, arched-anastomosing, the primary reticulations distinct. Infructescences axillary, paniculate, about 6 cm long, slightly pubescent. Sepals broadly ovate, rounded, 2 mm long, their margins somewhat ciliate. Fruits broadly obovate, equally 3-winged, the apex retuse and apiculate, about 1 cm long and usually slightly wider than long, glabrous, smooth, shining.

MINDORO, Paluan, *Bur. Sci.* 39639 Ramos, April 13, 1921. On forested slopes, altitude about 550 meters.

In aspect this species rather closely resembles a small-leaved form of *Guioa koelreuteria* (Blanco) Merr. (*G. perrottetii* Radlk.). Its distinguishing characters are its small leaflets and the narrowly winged or carinate upper portions of the leaf rachises. In the latter character it somewhat approaches *Guioa pleuroptëris* Radlk., but is remote from that species in all other characters.

RHAMNACEAE

RHAMNUS Tournefort

RHAMNUS MOLLIS sp. nov.

Frutex scandens, molliter pubescens; foliis subcoriaceis, ellipticis, 10 ad 13 cm longis, breviter acuminatis, basi rotundatis, margine minute crenato-dentatis, nervis utrinque 6, perspicuis; infructescentiis paniculatis, circiter 12 cm longis, ramis racemose dispositis, 5 ad 10 cm longis; fructibus pedicellatis, obovoideis, glabris, circiter 8 mm longis, calycis persistentibus, truncatis, disciformibus, pubescentibus, 2 mm diametro.

A scandent shrub, the younger parts, leaves, and inflorescences softly subferruginous-pubescent, branches terete, about 3 mm in diameter. Leaves subcoriaceous, elliptic, 10 to 13 cm long, 6 to 7.5 cm wide, olivaceous, shortly acuminate, base usually rounded, the margins rather minutely crenate-dentate, the lower surface densely and softly pubescent with short hairs; lateral nerves 6 on each side of the midrib, prominent; petioles more or less pubescent, about 1.5 cm long. Fruits racemosely arranged on leafless branches forming a paniculate infructescence about 12 cm long, this infructescence sometimes supplied with a few very greatly reduced leaves, the branches 5 to 10 cm long. Fruits solitary or in pairs, obovoid, glabrous, brown when dry, about 8 mm long, the persistent calyx disklike, truncate, pubescent, about 2 mm in diameter.

LUZON, Bontoc Subprovince, Mount Polis, *Bur. Sci.* 37689 Ramos & Edaño, February 25, 1920. In the mossy forest, altitude about 1,600 meters.

Among the Philippine species the present one is manifestly allied to *Rhamnus philippinensis* C. B. Rob., from which it is at once distinguishable by its indumentum; among the extra-Philippine species it is apparently closest to *R. triqueter* Wall. of India.

VITACEAE

LEE A Royen

LEE A NITIDA sp. nov.

Arbor glabra, 5 ad 6 m alta, ramis lenticellatis; foliis pinnatis, circiter 30 cm longis, foliolis 5 ad 7, oblongo-ovatis ad late oblongo-lanceolatis, chartaceis, nitidis, in siccitate brunneo-olivaceis, 12 ad 18 cm longis, 4 ad 6 cm latis, caudato-acuminatis, basi acutis, margine repando-dentatis vel undulato-denticulatis, eglandulosis, nervis utrinque circiter 8, distinctis; cymis 5 ad 6 cm longis, pedunculatis, paucifloris; floribus albidis, 4-meris, breviter pedicellatis, calycis cupulatis, 4 ad 5 mm longis, basi cuneatis, lobiis late ovatis, obtusis vel subacutis, usque ad 1.5 mm longis, corolla 6 mm longa, lobis patulis, 3 mm longis, intus ad apicem appendiculatis; fructibus obovoideis, 1 ad 1.5 cm diametro, seminibus plerumque 4.

A glabrous tree 5 to 6 m high, the branches lenticellate, the ultimate branchlets rugose, 2.5 to 3 mm in diameter. Leaves pinnate, about 30 cm long, the leaflets 5 to 7, oblong-ovate to broadly oblong-lanceolate, chartaceous, shining, when dry brownish-olivaceous, eglandular, 12 to 18 cm long, 4 to 6 cm wide, rather slenderly caudate-acuminate, the base acute, the margins repand-dentate or undulate-denticulate; lateral nerves about 8 on each side of the midrib, distinct, as are the reticulations; petiolules 8 to 12 mm long. Cymes including the peduncles 5 to 6 cm long, about as wide as long, few-flowered, the flowers white, 4-merous, shortly pedicelled; calyx cup-shaped, 4 to 5 mm long, the base cuneate, the lobes broadly ovate, obtuse to subacute, about 1.5 mm long. Corolla 6 mm long, the lobes spreading, 3 mm long, appendiculate at the apex inside, the staminal tube exserted, about 2 mm, 8-toothed; anthers 2 mm long. Fruits obovoid, 1 to 1.5 cm in diameter, reddish. Seeds usually 4.

LUZON, Apayao Subprovince, Mount Sulu, *Bur. Sci.* 28428 *Fénix* (type), May, 1917: Laguna Province, San Antonio, *Bur. Sci.* 20406 *Ramos*, February, 1913: Tayabas Province, Mount Binuang, *Bur. Sci.* 28830 *Ramos & Edaña*, May, 1917. In damp forests along small streams at low and medium altitudes.

A species apparently belonging in the group with *Leea philippinensis* Merr., well characterized by its small, few-flowered, rather lax cymes and its chartaceous, shining leaflets.

DILLENACEAE

SAURAUIA Willdenow

SAURAUIA LONGIPEDICELLATA sp. nov.

Frutex glaber; foliis oblanceolatis, chartaceis ad subcoriaceis, 11 ad 20 cm longis, breviter acuminatis, deorsum sensim angustatis, basi cuneatis, margine minute dentatis, nervis utrinque circiter 14, perspicuis; floribus paucis, longe pedicellatis, 1.8 cm diametro, fasciculatis, caulinis et axillaribus, pedicellis usque ad 5 cm longis, sepalis exterioribus 3 ad 3.5 mm longis, interioribus majoribus; staminibus 20; stylis 3, circiter 4 mm longis, deorsum breviter connatis.

An entirely glabrous shrub, the ultimate branches brownish, smooth, about 5 mm in diameter. Leaves oblanceolate, chartaceous to subcoriaceous, 11 to 20 cm long, 4 to 5.5 cm wide, brown when dry, slightly shining, the apex rather abruptly and shortly acuminate, gradually narrowed below to the cuneate base, the margin except in the lower one-third to one-half rather finely dentate; lateral nerves about 14 on each side of the midrib, abruptly curved and then ascending. Flowers white, fascicled on the trunk and larger branches and also in the leaf axils, about 1.8 cm in diameter, their pedicels slender, up to 5 cm long, usually with a pair of small, lanceolate bracts at or near the middle from 1 to 3 mm in length. Outer 2 sepals elliptic-ovate, 3 to 3.5 mm long, the inner 3 thinner, orbicular-elliptic, 5 mm long, broadly rounded, all entirely glabrous. Corolla lobes 7 to 8 mm long, 5 mm wide, retuse. Stamens 20, their filaments 2 mm long, the anthers equaling the filaments. Styles 3, about 4 mm long, united for the lower 1 mm. Fruits ovoid, about 6 mm in diameter.

MINDANAO, Zamboanga District, Malangas, *Bur. Sci.* 36897 *Ramos & Edaño*, November, 1919. In forests along streams at low altitudes.

A species strongly characterized by being entirely glabrous throughout, as well as by its unusually long, slender pedicels. It apparently belongs in the general group with *S. trunciflora* Merr.

THEACEAE

PYRENARIA Blume

PYRENARIA MINDANAENSIS sp. nov.

Frutex circiter 3 m altus, partibus junioribus parce pubescentibus, ramis teretibus, glabris; foliis chartaceis vel sub-

coriaceis, oblongo-obovatis, subolivaceis vel viridis, nitidis, utrinque glabris, 8 ad 15 cm longis, acuminatis, basi cuneatis, margine crenato-serratis, dentibus glanduloso-apiculatis, nervis utrinque circiter 12, subtus valde perspicuis, arcuato-anastomosantibus, reticulis laxis, perspicuis; floribus axillaribus, solitariis, sessilibus, circiter 3 cm diametro; sepalis suborbicularis cum bracteolis persistentibus, 6 ad 7 mm longis; petalis 5, obovatis, circiter 1.8 cm longis, extus adpresse pubescentibus; filamentis numerosis, 8 ad 10 mm longis, glabris, deorsum (2 mm) connatis; fructibus ovoideis, 1.5 ad 2 cm longis, 2- vel 3-locellatis.

A shrub about 3 m high, the younger parts more or less appressed-pubescent, the older parts glabrous, branches terete, grayish or brownish, the young branchlets greenish when dry. Leaves chartaceous to subcoriaceous, oblong-obovate, subolivaceous or greenish when dry, somewhat shining, glabrous on both surfaces or when young very slightly hirsute on the lower surface, 8 to 15 cm long, 2.5 to 5.5 cm wide, obtusely acuminate, the base cuneate, the margins crenate-serrate, the teeth glandular, apiculate; lateral nerves about 12 on each side of the midrib, very prominent on the lower surface as are the lax reticulations; petioles 5 to 8 mm long. Flowers axillary, solitary, sessile, about 3 cm in diameter. Sepals subcoriaceous, persistent, broadly ovate to reniform-ovate or orbicular, rounded, 6 to 7 mm long, externally densely appressed-pubescent, the subtending bracts numerous, imbricate, similar to the sepals but smaller. Petals 5, obovate, about 18 mm long, rounded, externally appressed-pubescent. Stamens indefinite, the filaments 8 to 10 mm long, glabrous, united for the lower 2 mm, the anthers broadly ovoid, about 1.2 mm long. Ovary ovoid, pubescent, 2 to 2.5 mm long; styles 5 to 6 mm long, glabrous, the 5 arms about 2 mm in length. Fruits ovoid, brown, ultimately glabrous, 1.5 to 2 cm long, usually 2- or 3-celled and with a single seed in each cell, the seeds smooth, slightly compressed, narrowed at both ends, about 1.5 cm long.

MINDANAO, Lanao District, *For. Bur.* 25181 Alvarez (type), March, 1916; Bukidnon Subprovince, Mount Candoon, *Bur. Sci.* 38839 Ramos & Edaño, July, 1920. In damp forests at an altitude of 1,200 meters. Originally determined as a *Thea*.

This is the first representative of the genus to be found in the Philippines. In vegetative characters it rather closely resembles *Pyrenaria camelliaeflora* Kurz, but is very different in its floral characters.

GUTTIFERAE

CALOPHYLLUM Linnaeus

CALOPHYLLUM OBLIQUINERVIUM sp. nov. § *Inophyllum*.

Arbor glaberrima, 7 ad 12 m alta, ramulis plus minusve 4-angulatis; foliis coriaceis, oblongo-obovatis ad oblanceolatis, nitidis, 5 ad 9 cm longis, obtusis ad breviter obtuse acuminatis, basi cuneatis; nervis utrinque numerosis, obliquis, obscuris; inflorescentiis racemosis, foliis subaequantibus; floribus circiter 1.5 cm diametro, sepalis exterioribus orbiculari-obovatis, concavis, 3.5 ad 5 mm diametro, interioribus majoribus, ovatis ad obovatis; petalis 4, 7 ad 9 mm longis, oblanceolatis ad anguste obovatis; fructibus globosis, apiculatis, circiter 1.5 cm diametro.

An entirely glabrous tree 7 to 12 m high, the branches terete, dark reddish-brown, the younger branchlets more or less 4-angled. Leaves coriaceous, oblong-obovate to oblanceolate, shining, olivaceous or brownish olivaceous when dry, 5 to 9 cm long, 1.5 to 3.5 cm wide, narrowed upward to the obtuse or very shortly and obtusely acuminate apex and below to the cuneate base; lateral nerves very numerous, crowded, slender, sometimes scarcely distinguishable, ascending at an angle of about 45°; petioles 1 to 1.5 cm long. Inflorescences racemose, axillary, usually solitary, about as long as the leaves, the buds globose, the flowers white, fragrant, about 1.5 cm in diameter, their pedicels 5 to 12 mm in length. Outer 2 sepals orbicular-ovate, concave, rounded, 3.5 to 5 mm in diameter, the inner 2 ovate to obovate, rounded, 7 to 8 mm long. Petals 4, oblanceolate to narrowly obovate, obtuse, 7 to 9 mm long, 2 to 5 mm wide. Stamens very numerous, their filaments 2.5 to 3.5 mm long. Ovary glabrous; style 4 to 5 mm long. Fruits globose, very shortly apiculate, about 1.5 cm in diameter.

LUZON, Camarines Province, *For. Bur.* 21423 Alvarez, May, 1914, in fruit, *For. Bur.* 27096 Alambra, March, 1918, with young fruits: Albay Province, Rapurapu, *For. Bur.* 20108 Agnes, sterile. PANAY, *For. Bur.* 15130 Cenabre, sterile. SAMAR, *Merrill Phil. Pl.* 1630, April, 1914, with immature fruits. PALAWAN, *For. Bur.* 27929 Cenabre, Paras, & Gallidon (type), February, 1920, *For. Bur.* 27902 Cenabre, Baldimor, & Eduviso, February, 1920, *Merrill* 9585, May, 1913. On forested slopes at low and medium altitudes, sometimes occurring on the sea-shore and immediately back of the mangrove swamps. Local names, *bitanghol* (Tag.), *kumukubol* (Tagb.), *bangkalan* (Tag.).

A species well characterized by its simple, racemose inflorescences and its obliquely nerved leaves, the very slender and often obscure lateral nerves ascending at an angle of about 45° and giving the leaf surface a striated appearance; the individual nerves are scarcely distinguishable under a lens. The alliance of this species appears to be with *Calophyllum buxifolium* Vesque, but it has much larger leaves than the latter species.

FLACOURTIACEAE

CASEARIA Jacquin

CASEARIA MINDANAENSIS sp. nov.

Frutex vel arbor parva; subglabra; foliis magnis, oblongis ad oblongo-ellipticis, circiter 30 cm longis, subcoriaceis, acuminatis, basi subacutis ad obtusis, margine minute denticulatis vel deorsum integris, subtus ad costa nervisque leviter puberulis, vetustioribus glabris, nervis utrinque circiter 9, adscendentibus, subtus valde perspicuis, reticulis subconfertis, distinctis, petiolo incrassato, 8 ad 10 mm longo; floribus fasciculatis, ut videtur paucis, brevissime pedicellatis, sepalis 4 mm longis, obtusis, punctato-glandulosis, glabris; capsulis 1.5 ad 1.8 cm longis, 2-valvis, haud costatis, subellipsoideis, acutis vel brevissime apiculatis; seminibus 4 ad 4.5 mm longis, obtusis, inaequilateralibus, arillo grosse fimbriato.

A shrub or small tree, the younger parts sparingly pubescent, ultimately glabrous, branches terete, grayish, about 5 mm in diameter, glabrous, distinctly lenticellate, the very young branchlets more or less pubescent. Leaves oblong to oblong-elliptic, about 30 cm long, 11 to 12 cm wide, the upper surface olivaceous, glabrous, the lower surface somewhat brownish and when young obscurely pubescent on the midrib and nerves, ultimately glabrous, the apex acuminate, the base subacute to obtuse, the margins minutely denticulate or entire in the lower part; lateral nerves about 9 on each side of the midrib, ascending, very prominent on the lower surface, the reticulations distinct, rather close; petioles thickened, 8 to 10 mm long. Flowers fascicled, apparently few, very shortly pediceled, persistent sepals 4 mm long, obtuse, glandular-punctate, glabrous or nearly so. Capsules glabrous, reddish yellow when fresh, dark brown when dry, subellipsoid, acute or very shortly apiculate, not costate, 1.5 to 1.8 cm long, 2-valved; seeds 4 to 4.5 mm long, inequilateral, somewhat compressed, obtuse, the aril exceeding the seed in length and coarsely fimbriate.

MINDANAO, Zamboanga District, Mount Tubuan, *Bur. Sci.* 36567 Ramos & Edaña, October, 1919. In forests along streams at an altitude of about 200 meters; locally known as *dalipa*.

A species well characterized among the Philippine forms by its unusually large leaves.

THYMELAEACEAE

AQUILARIA Lamarck

AQUILARIA ~~APICULATA~~ sp. nov.

Frutex subglaber, ramis teretibus, glabris, ramulis leviter pubescentibus; foliis chartaceis vel subcoriaceis, breviter petiolatis, oblongis, in siccitate brunneis, nitidis, 6 ad 11 cm longis, tenuiter acute acuminatis, basi acutis, subtus leviter pubescentibus, nervis primariis utrinque circiter 16, tenuibus; inflorescentibus subumbellatis vel cymosis, paucifloris, breviter pedunculatis; floribus 5-meris, sursum ampliatis, vix campanulatis, 5 mm longis, tenuiter pedicellatis, lobis orbicularibus, 2 mm longis; capsulis subellipsoideis, pedunculatis, circiter 1.7 cm longis; 2-locellatis, perspicue apiculato-acuminatis, basi acutis.

A subglabrous shrub about 3 m high, the branches brown or reddish brown, glabrous, the branchlets more or less appressed-pubescent, slender. Leaves chartaceous to subcoriaceous, oblong, brownish when dry, shining, 6 to 11 cm long, 2.5 to 4 cm wide, the apex slenderly and sharply acuminate, the base acute, the upper surface glabrous, the lower paler, sparingly pubescent, lateral nerves about 16 on each side of the midrib, slender, distinct; petioles about 3 mm long. Flowers subumbellate or somewhat cymose, yellow, the peduncles up to 3 mm long, somewhat pubescent, the flowers few, mostly 3 to 5 on each peduncle, their pedicels slender, up to 7 mm long. Perianth about 5 mm long, somewhat widened upward and about 2.5 mm in diameter at the throat but scarcely campanulate, glabrous, the lobes 5, spreading or reflexed, very slightly pubescent, orbicular-ovate, rounded, 2 mm long. Anthers 10, 0.8 to 1 mm long, inserted immediately below and alternate with the orbicular, pubescent, 0.8 mm long scales, which are inserted at the apex of the perianth tube. Ovary obovoid, 2-celled, compressed, pubescent, shortly stipitate. Stigma about 1 mm in diameter. Capsules subellipsoid, red when fresh, dark brown when dry, distinctly peduncled, the peduncle at least as long as the persistent perianth tube, 2-celled, 2-valved, about 1.7 cm long, the base acute, the apex distinctly apiculate-acuminate. Seeds dark brown, smooth,

shining, about 8 mm long excluding the basal appendage which is conical in shape and about 3.5 mm long.

MINDANAO, Bukidnon Subprovince, Mount Camates, *Bur. Sci.* 38601 Ramos & Edaño, July 14, 1920. In dry forests, altitude about 1,100 meters.

This species is probably most closely allied to *Aquilaria malaccensis* Lam. from which it is readily distinguished by its apiculate and retuse capsules and by characters of its inflorescences and flowers.

MYRTACEAE

EUGENIA Linnaeus

EUGENIA MIRABILIS sp. nov. § *Jambosa*.

Arbor parva, glabra, ramulis valde incrassatis, usque ad 2 cm diametro; foliis verticillatis, sessilibus, oblanceolatis, coriaceis, usque ad 70 cm longis, deorsum valde angustatis, basi obtusis, nervis utrinque circiter 30, valde perspicuis; floribus caulinis, fasciculatis, sessilibus, 4-meris, calycis infundibuliformibus, circiter 1 cm longis, lobis orbiculari-reniformibus, circiter 8 mm diametro; filamentis usque ad 3.5 cm longis.

A glabrous shrub or small tree about 4 m high, the ultimate branches thick, somewhat angled, up to 2 cm in diameter. Leaves sessile, verticillate, in whorls of 4 or 5, oblong-ob lanceolate, coriaceous, 60 to 70 cm long, 10 to 12 cm wide, smooth, brownish or olivaceous on the upper surface when dry, the lower surface pale, apex acute or acuminate, gradually narrowed to the abruptly obtuse base, the basal portion of the leaves 2.5 to 3 cm wide, the midrib very prominent on the lower surface and usually about 5 mm in diameter; lateral nerves about 30 on each side of the midrib, rather distant, very prominent, anastomosing 5 to 10 mm from the margin with the equally prominent, somewhat arched marginal nerves, the reticulations rather lax, not prominent. Flowers white, sessile, in fascicles or 5 or 6 on small tubercles along the trunks, the buds oblong-ovoid. Calyx about 1 cm long, funnel-shaped, the throat about 1 cm in diameter, lobes orbicular-reniform, about 8 mm in diameter; filaments slender, up to 3.5 cm long.

MINDANAO, Zamboanga District, Malangas, *Bur. Sci.* 36772 (type), 37238, 37347 Ramos & Edaño, October, 1919. In forests at low altitudes, locally known as *culodlab* and as *gulodlab*.

A remarkable species, at once distinguished by its greatly elongated, oblanceolate, sessile, verticillate leaves and by its ses-

sile, fascicled flowers which are borne on small tubercles on the trunks.

EUGENIA LANCILIMBA sp. nov. § *Jambosa*.

Frutex erectus glaber, ramis ramulisque teretibus, ramulis sulcatis; foliis oppositis, lanceolatis, subcoriaceis, 14 ad 20 cm longis, 2 ad 3.5 cm latis, utrinque subaequaliter angustatis, basi cuneatis, apice acuminatis, subtus perspicue glanduloso-punctatis, nervis utrinque circiter 20, tenuibus; cymis solitariis vel fasciculatis, plerumque e axillis defoliatis, 4 ad 6 cm longis, breviter pedunculatis vel e basi ramosis, laxis, ramis plerumque 3-floris, floribus omnibus pedicellatis, calycis tubo circiter 1 cm longo, cuneato, lobis 4, petalis circiter 1 cm diametro, staminibus circiter 2 cm longis, fructibus junioribus urceolatis.

An erect glabrous shrub 2 to 3 m high, the branches and branchlets terete, the former pale gray, the latter reddish brown and 3 to 4 mm in diameter. Leaves lanceolate, opposite, subcoriaceous, olivaceous and scarcely shining when dry, 14 to 20 cm long, 2 to 3.5 cm wide, subequally narrowed to the cuneate base and to the somewhat acuminate apex, the lower surface slightly paler than the upper and it and also often the upper surface conspicuously glandular-punctate, the midrib strongly impressed on the upper surface, prominent on the lower surface; lateral nerves slender, about 20 on each side of the midrib, anastomosing with the equally slender marginal nerves 1 to 2 mm from the edge of the leaf; petioles reddish brown, 10 to 14 mm long. Cymes mostly from the axils of fallen leaves, solitary or fascicled, shortly peduncled, 4 to 6 cm long, few-flowered, the ultimate branches for the most part 3-flowered, the axis and branches distinctly glandular-punctate. Flowers 4-merous, white, their pedicels 7 to 10 mm long. Calyx tube about 1 cm long, terete, cuneate, the throat 5 to 7 mm in diameter, the lobes broadly rounded, persistent, and conspicuously glandular-punctate. Petals about 1 cm in diameter, very conspicuously glandular-punctate. Stamens numerous, about 2 mm long, white. Immature fruits distinctly urceolate.

MINDANAO, Zamboanga District, Malangas, *Bur. Sci.* 36934 (type) 36935 *Ramos & Edaño*, November, 1919. On river banks at low altitudes, apparently in situations subject to sudden overflows; locally known as *salimbañgon*.

A remarkably distinct species well characterized by its conspicuously glandular-punctate, elongated, lanceolate leaves, and

its lateral, rather lax, few-flowered cymes, the flowers being comparatively rather large in size.

EUGENIA BESUKIENSIS (Hassk.) Merr. in Journ. Str. Branch Roy. As. Soc. 77 (1917) 226.

Microjambosa besukiensis Hassk. ex Miq. Fl. Ind. Bot. Suppl. (1861) 311, in syn.

Jambosa buxifolia Miq. Fl. Ind. Bot. 1 (1858) 1086, Suppl. (1861) 311, non *Eugenia buxifolia* Willd.

MINDORO, Mount Calavite, *Bur. Sci.* 39440 Ramos, April, 1921. On forested slopes, altitude about 600 meters. Borneo, Bangka.

The specimens exactly match our comprehensive series of specimens from Borneo and Bangka. New to the Philippines.

ARALIACEAE

SCHEFFLERA Forster

SCHEFFLERA BUKIDNONENSIS sp. nov. § *Heptapleurum*.

Frutex scandens, glaber, ramulis circiter 5 mm diametro; foliis 8-foliolatis, foliolis subcoriaceis, lanceolatis, integris, 6 ad 9 cm longis, olivaceis, nitidis, caudato-acuminatis, basi cuneatis, nervis utrinque 5 vel 6, tenuibus; inflorescentiis circiter 30 cm longis, ramis primariis numerosis, patulis, 9 ad 18 cm longis, floribus umbellatis, umbellis 6- ad 8-floris, in ramis primariis racemose dispositis; floribus 5-meris, pedicellatis; fructibus subellipsoideis, 4 ad 5 mm longis, 5-locellatis, leviter sulcatis.

A glabrous scandent shrub, the branches blackish brown when dry, about 5 mm in diameter, with few lenticels. Leaves 8-foliolate, their petioles about 10 cm long, rather slender; leaflets lanceolate, entire, subcoriaceous, olivaceous, shining, 6 to 9 cm long, 1.5 to 2.5 cm wide, subequally narrowed to the caudate-acuminate apex and to the cuneate base; lateral nerves 5 or 6 on each side of the midrib, slender; petiolules 1.5 to 2 cm long. Inflorescences terminal, about 30 cm long, the primary branches alternate along the greatly elongated rachis, spreading, the lower ones up to 18 cm long, the upper ones gradually shorter; the uppermost 7 to 9 cm long; umbels 6- to 8-flowered, racemosely arranged on the primary branches, their peduncles 5 to 7 mm long, the pedicels 3 to 5 mm in length. Fruits subellipsoid, 5-celled, 4 to 5 mm long, brown when dry, slightly sulcate, the filaments rather long-persistent, 2 to 3 mm long.

MINDANAO, Bukidnon Subprovince, Mount Candoon, *Bur. Sci.* 38737 Ramos & Edaña, June 27, 1920. Climbing on trees on forested slopes at an altitude of about 1,600 meters.

A species not closely allied to any previously known Philippine form, well characterized by its lanceolate, caudate-acuminate, long-petiolulate, comparatively small, entire leaves and by its ample inflorescences, the spreading primary branches being racemosely arranged along the elongated axis.

SCHEFFLERA HALCONENSIS sp. nov. § *Heptapleurum*.

Frutex glaber, ramulis lenticellatis, circiter 5 mm diametro; foliis 5-foliolatis, foliolis oblongo-ellipticis, coriaceis, rigidis, atro-olivaceis, subtus pallidioribus, integris, 8 ad 15 cm longis, acute acuminatis, basi acutis, plerumque plus minusve inaequilateralibus, brevissime petiolulatis, nervis utrinque 13 ad 15, tenuibus, admodum subobsoletis; inflorescentiis breviter pedunculatis, ramis primariis plerumque 3, elongatis, circiter 20 cm longis, deorsum nudis, floribus umbellatis, umbellis paucis, 5- ad 7-floris, racemose dispositis; fructibus 6-locellatis, late ovoideis, 5 mm longis, leviter sulcatis.

A glabrous shrub, the branches terete, about 5 mm in diameter, lenticellate. Leaves 5-foliolate, their petioles 4 to 7 cm long, rather stout; leaflets oblong-elliptic, coriaceous, rigid, the upper surface dark olivaceous when dry, the lower surface much paler, slightly shining, 8 to 15 cm long, 4 to 6 cm wide, the apex slightly acuminate, base acute, margins entire; lateral nerves very slender, 13 to 15 on each side of the midrib, often scarcely visible, the reticulations obsolete; petiolules 3 to 8 mm long. Inflorescences shortly peduncled, usually bearing three primary elongated branches about 20 cm in length, these floriferous only in the upper one-half, the umbels racemosely arranged, 5- to 7-flowered, the peduncles about 1 cm long, the pedicels 3 to 5 mm long. Fruits orange-red, broadly ovoid, 6-celled, about 5 mm long, slightly sulcate.

MINDORO, Mount Halcon, *Merrill 5696*, November, 1906. In damp primary forests at an altitude of about 900 meters.

A species well characterized by its brittle, obscurely nerved leaflets and its shortly peduncled inflorescences bearing usually three elongated primary branches which bear a few racemosely disposed umbels in the upper part. The material was collected from an erect shrub about 1 m high; in age the plant doubtless becomes more or less scandent.

SCHEFFLERA CINNAMOMEA sp. nov. § *Cephaloschefflera*.

Arbor erecta (vel scandens?), inflorescentiis junioribus dense furfuraceis; foliis circiter 12-foliolatis, longissime petiolatis, petiolo glabro, circiter 70 cm longo, foliolis oblongis ad oblongo-

ellipticis, crasse coriaceis, 25 ad 30 cm longis, integris, breviter acuminatis, basi rotundatis, supra olivaceis, nitidis, subtus cinnamomeis, junioribus parce stellato-pubescentibus, vetustioribus glabris, nervis utrinque circiter 12, valde perspicuis, reticulis distinctis, petiolulis 6 ad 10 cm longis; inflorescentiis (vel ramis primariis) crassis, circiter 80 cm longis, furfuraceis, capitulus globosis, 1.5 ad 1.8 cm diametro, racemose dispositis; fructibus junioribus 5 mm longis, dense adpresse-hirsutis, 5-6-sulcatis, calycis limbo truncato, glabro, 3 mm diametro.

A tree or a coarse scandent vine, the younger parts of the inflorescences densely furfuraceous. Branches not seen. Petioles stout, dark reddish brown when dry, about 70 cm long and 1 cm in diameter, glabrous; leaflets about 13, oblong to oblong-elliptic, thickly coriaceous, 25 to 30 cm long, 10 to 12 cm wide, entire, the upper surface glabrous, shining, brownish olivaceous, the lower surface cinnamomeus and usually with scattered short stellate hairs, ultimately glabrous or nearly so, the apex shortly acuminate, base rounded; lateral nerves 10 to 12 on each side of the midrib, very prominent on the lower surface, the reticulations distinct; petiolules minutely furfuraceous, 6 to 10 cm long. Inflorescences (or primary branches of the inflorescences) stout, racemose, about 80 cm long, the upper parts densely furfuraceous, the indumentum pale brownish, the lower parts sparingly furfuraceous, ultimately nearly glabrous, each inflorescence or branch bearing about 30 racemosely arranged globose heads 1.5 to 1.8 cm in diameter, their peduncles furfuraceous, about 1 cm long or the uppermost ones shorter, each peduncle subtended by a deciduous bract, the persistent bracts on the lower part of the rachis oblong-ovate, thickly coriaceous, 2.5 to 3 cm long. Fruits densely crowded, about 5 mm long, 3 mm in diameter, 5- or 6-celled, more or less sulcate, narrow, pale, the tube densely appressed-hirsute, the projecting calyx rim truncate, glabrous; each fruit subtended by a single bract and two bracteoles, the former ovate, 5 mm long, the latter lanceolate, acuminate, glabrous, about 4 mm in length.

MINDANAO, Bukidnon Subprovince, Mount Candoon, *Bur. Sci.* 38907 Ramos & Edaña, July, 1920. In the mossy forest at an altitude of about 1,700 meters. Local name *kamang-kamang*.

This species resembles *Schefflera apoensis* Elm., but is readily distinguished from it and from other more or less allied forms by its very densely hirsute calyx tube, the projecting calyx rim being glabrous but surrounded by a fringe of hairs projecting from the calyx tube.

ARTHROPHYLLUM Blume

ARTHROPHYLLUM CENABREI sp. nov.

Arbor glabra, circiter 10 m alta, ramulis ultimis circiter 5 mm diametro; foliis superioribus usque ad 10 cm longis, 3- ad 5-foliolatis, vel ultimis 1-foliolatis, foliolis plerumque ellipticis, 4.5 ad 6 cm longis, brevissime obtuse acuminatis, brunneo-olivaceis, nitidis, chartaceis vel subcoriaceis, nervis utrinque 3 vel 4, tenuibus; pedunculis circiter 4 cm longis, pedicellis 8 mm longis, fructibus ovoideis, 7 mm diametro.

A glabrous tree about 10 m high, the ultimate branches about 5 mm in diameter. Upper leaves pinnate, up to 10 cm long, the leaflets mostly 5, sometimes 3, or the uppermost leaves reduced to simple leaflets, the rachis and petiole about 4 cm long, the leaflets mostly elliptic, 4.5 to 6 cm long, 2.5 to 3.5 cm wide, chartaceous to subcoriaceous, very shortly and obtusely acuminate, base acute, brownish olivaceous and slightly shining when dry; lateral nerves slender, 3 or 4 on each side of the midrib; petiolules 5 to 10 mm long. Peduncles about 4 cm long, umbellately arranged at the tips of the branchlets, usually, however, with solitary inflorescences in the axils of the uppermost leaves, thus forming a somewhat leafy inflorescence. Fruits 5 to 8 in each umbel, ovoid, about 7 mm in diameter, their pedicels 8 to 10 mm in length.

CEBU, Maraag, *For. Bur.* 28343 *Cenabre & de la Cruz*, March 12, 1921. On slopes at an altitude of about 600 meters. Local name *binglev*.

A species well characterized by its small leaflets which are gradually reduced in number, at least on the uppermost branchlets. In general this species seems to be most closely allied to *Arthrophyllum pulgarens* Elm. but is at once distinguishable by its very few leaflets.

ALANGIACEAE

ALANGIUM Lamarck

ALANGIUM PILOSUM sp. nov. § *Marlea*.

Arbor circiter 18 m alta, subtus foliis et ramulis inflorescentiisque dense molliter fulvo-pubescentibus; foliis inaequilateralibus, chartaceis, oblongo-ovatis vel oblongo-lanceolatis, valde subtenuiter acuminatis, usque ad 13 cm longis, penninerviis; cymis axillaribus, solitariis, circiter 5 cm longis; fructibus circiter 8 mm longis, ovoideis vel ovoideo-ellipticis, parce pubescentibus.

A tree about 18 m high. Branches terete, densely fulvous-pubescent as are the branchlets, inflorescences, and under sur-

faces of the leaves. Leaves entire, chartaceous, oblong-ovate to oblong-lanceolate, 8 to 13 cm long, 3 to 4.5 cm wide, inequilateral, the base rounded on one side, acute on the other, the apex slenderly acuminate, the acumen often somewhat falcate, the upper surface brown, somewhat pubescent on the midrib and nerves, ultimately nearly glabrous, the lower rather densely and softly pubescent with short fulvous hairs; nerves 6 or 7 on each side of the midrib, curved-ascending; petioles densely and softly fulvous-pubescent, 5 to 8 mm long. Inflorescences of axillary, peduncled, solitary, softly fulvous-pubescent cymes 4 mm wide or less, the peduncles about 2 cm long. Fruits about 8 mm long, ovoid or ovoid-ellipsoid, slightly pubescent, brown when dry, crowned by the more densely pubescent calyx rim.

LUZON, Rizal Province, *For. Bur. 3307 Ahern's collector* (type), September, 1905, *Loher 6229*. A less-pubescent form is represented by *Bur. Sci. 32715 Ramos* and *For. Bur. 32608 Paraíso*, from Ilocos Norte Province, Luzon, July, 1918, and January, 1915.

Var. SUBGLABRUM var. nov.

A type differt foliis glabris vel subglabris.

Flowers white. Ovary pubescent, 1 mm long, the limb produced about 1 mm above the ovary, truncate or very obscurely toothed. Petals 6 or 8, pubescent, about 5 mm long, 1 mm wide, often connate in pairs, the flower then appearing as 3- or 4-merous. Stamens 6 or 8, 4 mm long. Style 4 mm long, the arms 2, 1 mm long, glabrous, linear.

NEGROS, *For. Bur. 23399 Contreras*, July 14, 1914. In rocky places on slopes, altitude about 300 meters.

This species is most closely allied to *Alangium vitiense* Harms as Wangerin has arranged the species. It is distinguished by its small flowers. Local names are *malabulan* (Tag.) and *pangagrauen* (Ilk.).

ERICACEAE

DIMORPHANTHERA F. Mueller

DIMORPHANTHERA MINDANAENSIS sp. nov.

Species *D. apoanae* Schltr. affinis differt floribus glabris.

A shrub, entirely glabrous except the bracts inclosing the inflorescences, the branches and branchlets rather stout, reddish brown when dry or sometimes nearly black. Leaves thickly coriaceous, ovate to elliptic, brownish when dry, 4 to 8 cm long, 2.5 to 4.5 cm wide, somewhat shining, the apex shortly acumin-

ate, the base acute to rounded and usually 5-nerved, sometimes with an additional pair of slender marginal nerves, the inner nerves leaving the midrib 4 to 8 mm above the base, the reticulations rather lax; petioles 4 to 8 mm long, rather stout. Flowers fascicled in the uppermost axils, the young buds entirely inclosed by numerous, imbricate, brown, sparingly pubescent, concave bracts forming a cylindric head about 1 cm in diameter, some of the bracts subpersistent, others deciduous. Pedicels up to 10 mm long. Calyx glabrous, about 3.5 mm long, shallowly 5-lobed, the lobes broadly ovate, shortly and abruptly acuminate. Corolla red, 8 to 10 mm long, glabrous, somewhat widened upward, the lobes ovate, about 3 mm long. Stamens 10, glabrous, dimorphous, the larger ones with filaments and anthers about 4 mm long, the shorter ones with filaments 3 mm long and anthers about 2 mm long. Styles 12 mm long, glabrous. Fruits unknown.

MINDANAO, Misamis Province, Mount Malindang, *For. Bur.* 4708 *Mearns & Hutchinson*, May, 1906. In the mossy forest, altitude about 1,700 meters. The same species is apparently represented by *Bur. Sci.* 38537 *Ramos & Edaño* from Mount Lipa, Bukidnon Subprovince, Mindanao, July, 1920.

Both specimens were originally identified as *Vaccinium apoanum* Merr.=*Dimorphanthera apoana* Schltr. but, like that species, are true representatives of the genus *Dimorphanthera*, differing from the latter especially in the glabrous flowers. It is the second species of the genus to be found in the Philippines, *Dimorphanthera* being now known otherwise only from New Guinea and Amboina, with twenty-seven species in New Guinea and one in Amboina.

EPACRIDACEAE

STYPHELIA Smith

STYPHELIA PHILIPPINENSIS sp. nov.

Frutex vel suffrutex 0.5 ad 3 m altus, ramis ramulisque numerosis, valde rugosis, ramulis puberulis; foliis numerosis, confertis, rigidis, acute acuminatis, anguste lanceolatis, 7 ad 13 mm longis, 1 ad 2 mm latis, brevissime petiolatis, supra olivaceis, subtus glaucis; floribus terminalibus, bracteis bractiolisque late ovatis, subacutis, 2 mm longis; sepalis 5, ovatis, 3 mm longis, corollae lobis intus villosis; fructibus in siccitate rugosis, 3 ad 4 mm diametro, putamine 4-loculare.

A much-branched, rather rigid undershrub or shrub, 0.5 to 3 m high, the branches and branchlets rugose from the numerous conspicuous pulvini of fallen leaves. The ultimate branchlets somewhat puberulent. Leaves very numerous, crowded, imbricate, rigid, narrowly lanceolate, sharply acuminate, 7 to 13 mm long, 1 to 2 mm wide, the upper surface smooth, olivaceous, shining, the lower surface glaucous, longitudinally striate, the petiole about 0.5 mm long. Flowers terminal, few to many, crowded, the spikelike inflorescence up to 1 cm long and 5 mm in diameter. Flowers white, the bracts broadly ovate, acute or somewhat obtuse, concave, the margins slightly pubescent, about 2 mm long, the bracteoles similar. Sepals 5, ovate, about 3 mm long, acute, their margins slightly ciliate. Corolla tube rather slender, glabrous, about 2 mm long, the lobes 5, narrowly lanceolate, acuminate, as long as the tube, spreading, villous on the inside. Ovary subglobose, glabrous, the style about 1 mm long. Fruit globose, somewhat fleshy, white, pink or red when fresh, when dry rugose, 3 to 4 mm in diameter, the putamen hard, 4-celled, the cells 1-seeded.

LUZON, Benguet Subprovince, between Suyoc and Pauai, *Merrill* 4762, November 7, 1905, on exposed ridges, altitude about 2,200 meters, *For. Bur.* 1443 *Darling*, January, 1909. NEGROS, Canlaon Volcano, *Merrill Philip. Pl.* 243 (type), April, 1910, a shrub up to 3 m high in the mossy thickets on exposed ridges but here not common, abundant in open places on the old crater ascending to an altitude of about 2,000 meters, often flowering when less than 0.5 m high. MINDANAO, Davao Subprovince, Mount Apo, *Copeland* 1040, 1419, April and October, 1904, *De Vore & Hoover* 313, 379, May, 1903, *Elmer* 11389.

The specimens have been referred to the Bornean *Styphelia suaveolens* (Hook. f.) J. J. Sm., the identification having been based largely on published descriptions. The species is manifestly allied to the Bornean form but abundant material from Mount Kinabalu, the type locality of the latter species, shows that the Philippine form differs in a number of details, notably in its much longer, differently shaped, sharply acuminate leaves and shorter petioles, and I am now of the opinion that it should be considered specifically distinct. Doctor Copeland notes that on Mount Apo this, with *Vaccinium villarii* Vid.=*V. myrtoides* Miq., is the dominant shrub on the upper 200 meters of the mountain, ascending to the summit at an altitude of 2,820 meters.

MYRSINACEAE

Mez³ has recently proposed numerous new species of Myrsinaceae, but most of those based on Philippine material had previously been amply described. Of the twenty-four species described from Philippine material I unhesitatingly reduce the following eighteen. In a number of cases Mez's type specimen is of the same collection as the types of previously described forms. Additional study may show that *Ardisia macropus* Mez is not sufficiently distinct from *A. saligna* Mez, and that *Jubilaria radlkoferi* Mez is not distinct from *Embelia porteana* Mez. The following reductions must be made:

Maesa grossedentata Mez in Fedde Repert. 16 (1920) 309 = *M. laxa* Mez.

Maesa piscatorum Mez l. c. = *M. gaudichaudii* A. DC.

Maesa lobuligera Mez op. cit. 310 = *M. megaphylla* Merr. in Philip. Journ. Sci. 12 (1917) Bot. 158.

Ardisia cincta Mez op. cit. 312 = *A. marginata* Blume.

Ardisia milleflora Mez op. cit. 410 = *A. diffusa* Merr. in Philip. Journ. Sci. 5 (1910) Bot. 216.

Ardisia lanaensis Mez op. cit. 411 = *A. clementis* Elm. Leaf. Philip. Bot. 2 (1910) 665.

Ardisia negroënsis Mez l. c. = *A. squamulosa* Presl.

Ardisia glauca Mez op. cit. 412 = *A. geissanthoides* Mez l. c.!

Ardisia magnifica Mez op. cit. 413 = *A. romanii* Elm. Leaf. Philip. Bot. 5 (1913) 1820.

Ardisia palawanensis Mez l. c. = *A. palawanensis* Merr. in Philip. Journ. Sci. 5 (1910) Bot. 220.

Ardisia dataënsis Mez op. cit. 414 = *Ardisia curtipes* Merr. in Philip. Journ. Sci. 5 (1910) Bot. 372.

Ardisia membranifolia Mez op. cit. 415 = *Ardisia warburgiana* Mez.

Ardisia reptans Mez l. c. = *A. reptans* Merr. in Philip. Journ. Sci. 5 (1910) Bot. 416.

Discocalyx dolichopus Mez op. cit. 417 = *D. montana* Elm. Leaf. Philip. Bot. 2 (1908) 443.

Discocalyx crenulatus Mez op. cit. 418 = *D. montana* Elm.

Jubilaria magnolifolia Mez op. cit. 421 = *Loheria bracteata* Merr. in Philip. Journ. Sci. 5 (1910) Bot. 374.

Embelia latifolia Mez op. cit. 422 = *Embelia nigropunctata* Merr. in Philip. Journ. Sci. 7 (1912) Bot. 326.

Rapanea peregrina Mez op. cit. 424 = *Rapanea venosa* Elm. Leaf. Philip. Bot. 2 (1910) 672.

³ Mez, C., *Additamenta monographica* 1919. III Myrsinaceae, Fedde Repert. 16 (1920) 309-312; 410-425.

MAESA Forskål

MAESA MEGALBOTRYA sp. nov.

Frutex scandens, inflorescentiis obscure puberulis exceptis glaber, ramis circiter 5 mm diametro, brunneis, lenticellatis; foliis ovatis, chartaceis, 14 ad 16 cm longis, acuminatis, basi late rotundatis, margine grosse crenatis; inflorescentiis terminalibus, paniculatis, circiter 50 cm longis, multifloris; floribus 5-meris, calycis lobis ovatis, integris, circiter 0.8 mm longis, haud lineatis, glabris, corolla 1.5 mm longa, lobis late orbiculari-ovatis, usque ad $\frac{1}{2}$ connatis, rotundatis, haud lineatis; bracteolis ovatis, acutis vel acuminatis, 1 mm longis.

A scandent shrub, glabrous except the obscurely puberulent inflorescences. Branches about 5 mm in diameter, terete, dark brown, lenticellate. Leaves ovate, chartaceous, pale olivaceous when dry, somewhat shining, the lower surface brownish, 14 to 16 cm long, 8 to 9 cm wide, acuminate, the acumen minutely apiculate, base broadly rounded, margins coarsely crenate; lateral nerves 7 or 8 on each side of the midrib, rather prominent, the reticulations not distinct; petioles about 2 cm long. Panicles terminal, about 50 cm long, the lower branches 20 to 30 cm long, the lowermost ones subtended by reduced leaves, these from 4 to 8 cm in length. Flowers very numerous, racemously disposed on the ultimate branchlets, their pedicels about 1 mm long, in fruit up to 2 mm in length, the bracts ovate, 1.5 mm long, slenderly and conspicuously acuminate, slightly puberulent, the bracteoles broadly ovate, acute or acuminate, 1 mm long. Calyx lobes 5, ovate, acute, 0.8 mm long, not at all lineate, entire, glabrous, their margins not ciliate. Corolla about 1.5 mm long, the lobes broadly orbicular-ovate, rounded, extending about one-half to the base of the corolla, not lineate. Stamens inserted near the base of the corolla, the filaments less than 1 mm long. Immature fruits subellipsoid, about 2.5 mm long, not glandular.

PALAWAN, Taytay, Merrill 9176, April, 1913. In thickets at an altitude of about 10 meters.

A species well characterized by its unusually large terminal panicles. It is apparently closest to *Maesa paniculata* A. DC. and among the Philippine forms belongs in the group with *Maesa cumingii* A. DC., although remote from the latter species.

MAESA UNDULATA sp. nov.

Frutex scandens, inflorescentiis obscure puberulis exceptis glaber, ramis brunneis, lenticellatis; foliis ovatis, brunneis, distincte reticulatis, chartaceis, nitidis, 9 ad 13 cm longis, acuminatis, basi

rotundatis, margine leviter undulatis, cartilagineis; paniculis axillaribus, 10 ad 20 cm longis; floribus 5-meris, calycis glabris, lobis late ovatis, obtusis vel minute apiculatis, haud ciliatis, haud lineatis, corollae lobis late elliptico-ovatis, rotundatis, 1.4 mm longis, usque ad $\frac{1}{2}$ connatis, obscure lineatis; bracteolis ovatis, acuminatis, 0.8 mm longis.

A scandent shrub, glabrous except the inflorescences, which are obscurely puberulent. Branches brown, 4 to 5 mm in diameter, lenticellate, the ultimate branchlets about 2 mm in diameter, terete. Leaves ovate, chartaceous, 9 to 13 cm long, 5 to 7 cm wide, the upper surface brownish olivaceous, shining, the lower surface brown, the apex acuminate and slightly apiculate, the base broadly rounded, margins shallowly undulate, the edge of the leaf distinctly cartilaginous; lateral nerves 8 or 9 on each side of the midrib, rather prominent on the lower surface, the reticulations distinct, the ultimate ones plainly visible to the naked eye. Panicles axillary, ample, rather many-flowered, 10 to 20 cm long, the primary branches slender, usually spreading, up to 10 cm in length, the flowers racemosely disposed on the ultimate branches, white or nearly so. Flowers 5-merous, the bracts oblong-ovate, acute or acuminate, about 1 mm long, the bracteoles ovate, acuminate, 0.8 mm long, the pedicels 1 to 1.5 mm in length. Calyx glabrous, about 1.5 mm in diameter, eglandular, the lobes broadly ovate, often minutely apiculate, not lineate and not at all ciliate, entire. Corolla lobes broadly elliptic-ovate, rounded, about 1.4 mm long, extending to or below the middle of the corolla, obscurely lineate. Stamens inserted near the base of the corolla lobes, their filaments slender, 0.6 mm long.

LUZON, Tayabas Province, near Tagbilao, *Bur. Sci.* 26872 *Edaño*, March, 1917. In thickets or forests, apparently from low altitudes.

This species is probably most closely allied to *Maesa coriacea* Mez and among the Philippine species comes nearest to *Maesa megaphylla* Merr. from which it is distinguished, among other characters, by its undulate and distinctly reticulate leaves.

ARDISIA Swartz

ARDISIA CALAVITENSIS sp. nov. § *Tinus*.

Frutex glaberrimus, 1 m altus; foliis oblongis ad oblongo-ovatis, integris, 9 ad 12 cm longis, subcoriaceis, olivaceis, nitidis, obtusis vel breviter obtuseque acuminatis, basi cuneatis, utrinque distincte reticulatis, vix punctatis, nervis primariis utrinque 12

ad 15, tenuibus; petiolo 1.5 ad 2 cm longo; inflorescentiis racemoso-umbellatis, 3 ad 5 cm longis; sepalis usque ad $\frac{1}{3}$ connatis, orbicularis, rotundatis, 4 mm diametro, glabris, eglandulosis, margine haud ciliatis; petalis ovatis, obtusis, 9 mm longis, eglandulosis; connectivo haud glandulosis.

An entirely glabrous shrub, about 1 m high, the branches and branchlets brownish or grayish. Leaves oblong to oblong-ovate, entire, 9 to 12 cm long, 3 to 5 cm wide, subcoriaceous, olivaceous, shining, the apex obtuse to shortly and obtusely acuminate, the base cuneate, both surfaces distinctly reticulate, scarcely punctate-glandular; primary lateral nerves 12 to 15 on each side of the midrib, slender but distinct on both surfaces; petioles 1.5 to 2 cm long. Inflorescences lateral, simply umbellate-racemose, 3 to 5 cm long, the flowers somewhat crowded near the apex of the peduncle, their pedicels stout, 10 to 12 mm long. Sepals united for about one-third, orbicular, rounded, about 4 mm in diameter, glabrous, their margins not at all ciliate, eglandular. Petals pink, ovate, obtuse, about 9 mm long, 6 mm wide, eglandular. Anthers oblong-lanceolate, acuminate, 6 to 7 mm long, the connective not at all glandular.

MINDORO, Paluan and Mount Calavite, *Bur. Sci.* 39435 (type) 39632 Ramos, April, 1921. In primary forests up to an altitude of 600 meters.

A species in the alliance with *Ardisia pirifolia* Mez, from which it is at once distinguished by its longer petioles, its eglandular petals, and the distinct and rather distant primary nerves, the reticulations being distinct on both surfaces.

DISCOCALYX Mez

DISCOCALYX BRACHYBOTRYS sp. nov.

Frutex glaber, ramulis circiter 4 mm diametro; foliis sessilibus vel subsessilibus, oblongo-ellipticis ad late oblanceolatis, 9 ad 16 cm longis, integris, chartaceis, pallide olivaceis, utrinque subaequaliter angustatis, acuminatis, basi obtusis, subtus perspicue glanduloso-punctatis, nervis utrinque circiter 15, distinctis; inflorescentiis racemosis vel depauperato-paniculatis, 1 ad 1.5 cm longis, in ramis circiter 1 cm longis extra-axillaribus dispositis, ramis cicatricibus perspicuis instructis; floribus 5-meris, calycis petalisque perspicue atro-glandulosis, calycis lobis acutis vel obtusis; petalis elliptico-obovatis, 3 mm longis.

A glabrous shrub about 1 m high, the ultimate branches terete, reddish brown, about 4 mm in diameter. Leaves sessile or subsessile, oblong-elliptic to broadly oblanceolate, 9 to 16 cm long,

2.5 to 6 cm wide, entire, chartaceous, pale olivaceous when dry, subequally narrowed to the somewhat acuminate apex and abruptly obtuse base; the lower surface conspicuously glandular-punctate, especially near the margins, the glands often nearly black; lateral nerves about 15 on each side of the midrib, slender, distinct as are the reticulations. Inflorescences very short, racemose or depauperate-paniculate, 1 to 1.5 cm long, one to several, from the tip of the short, specialized, extra-axillary, lateral branches, these specialized branches 1 cm long or less, about 2 mm in diameter, marked with numerous, conspicuous scars of fallen peduncles, the apical bracts lanceolate, acuminate, 3 to 4 mm long. Flowers 5-merous, their pedicels up to 2 mm long. Calyx and corolla very conspicuously black-glandular, the calyx lobes triangular-ovate, acute or obtuse, 0.8 mm long. Petals elliptic-obovate, obtuse, 3 mm long. Filaments and anthers each about 1 mm long. Ovary equaling the style in length, glandular.

MINDANAO, Zamboanga District, *Bur. Sci.* 37463 Ramos & Edaño, December, 1919. Along streams in forests at low altitudes.

A species allied to *Discocalyx sessilifolia* Merr. but with thinner, rather slenderly acuminate, prominently glandular-punctate leaves, and with very much shorter inflorescences.

DISCOCALYX PHANEROPHLEBIA sp. nov.

Frutex erectus, simplex, caulis sursum 1.5 ad 2 cm diametro; foliis oblanceolatis ad oblongo-oblanceolatis, 45 ad 60 cm longis, coriaceis, olivaceis, acutis, deorsum angustatis, margine deorsum integris, sursum dentatis vel crenato-dentatis, costa subtus valde incrassata, nervis utrinque circiter 20, supra impressis, subtus valde perspicuis; infructescentiis paniculatis, 2.5 ad 6 cm longis, in ramis specialibus lateralibus incrassatis 5 ad 10 cm longis dispositis; fructibus globosis, 8 mm diametro, calycis persistentibus 5-meris, 3 mm diametro, lobis late ovatis, obtusis, glanduloso-punctatis.

An erect, apparently unbranched, glabrous shrub 1 to 2 m high, the leaves crowded near the apex of the trunk, the stem here 1.5 to 2 cm in diameter. Leaves oblanceolate to oblong-oblanceolate, 45 to 60 cm long, coriaceous, the upper surface olivaceous when dry, the lower surface much paler and not, or very inconspicuously, punctate, the apex acute, gradually narrowed below to the long-decurrent base, the margins in the lower one-fourth to one-third entire, above rather closely dentate or crenate-dentate, the teeth small; midrib very prominent on

the lower surface, in the lower part of the leaf 5 to 6 mm in diameter, the midrib and nerves impressed on the upper surface, the nerves 20 or more on each side of the midrib, very prominent on the lower surface as are the primary reticulations; petioles stout, 3 to 5 cm long, 5 to 7 mm in diameter, the lamina sometimes very narrowly decurrent almost to the base. Infructescences paniced, crowded at the apex of specialized lateral branches, these specialized branches from the axils of leaves or of fallen leaves, stout, 5 to 10 cm long, more or less thickened upward, the apical part supplied with numerous conspicuous scars of fallen panicles, the bracts lanceolate, acuminate, up to 1 cm long, deciduous. Panicles in fruit 2.5 to 6 cm long; pedicel in fruit stout, about 3 mm long. Flowers 5-merous, the persistent calyx 3 mm in diameter, the lobes broadly ovate, obtuse, glandular-punctate, glabrous, 0.6 mm long. Fruit globose, black when dry, about 8 mm in diameter.

MINDANAO, Bukidnon Subprovince, Manilupa River and Mount Candoon, *Bur. Sci.* 38690 (type), 38792 Ramos & Edaña, June and July, 1920. In forests along streams, altitude 1,200 to 1,400 meters.

A species belonging in the same group with, and closely allied to, *Discocalyx insignis* Merr., differing especially in its narrower leaves.

EMBELIA Burman f.

EMBELIA ELLIPTICA sp. nov. § *Euembelia*.

Frutex scandens, inflorescentiis puberulis exceptis glaber, ramulis 3 mm diametro; foliis ellipticis, integris, coriaceis, olivaceis, nitidis, 7 ad 11 cm longis, brevissime et latissime obtuse acuminatis, basi rotundatis, nervis utrinque circiter 15, patulis, distinctis, reticulis utrinque valde perspicuis; paniculis terminalibus, circiter 25 cm longis, multifloris; floribus 5-meris, calycis puberulis, 2 mm diametro glandulis paucis conspicuis instructis, lobis triangulari-ovatis, acutis, margine leviter ciliatis, petalis intus papilloso-puberulis, ellipticis, 2 ad 2.2 mm longis, glandulis paucis instructis, connectivo in $\frac{1}{2}$ superiore parte glanduloso.

A scandent shrub, glabrous except the inflorescences, the branches and branchlets lenticellate, reddish brown, the former up to 1 cm in diameter, the latter 3 to 4 mm in diameter. Leaves elliptic, coriaceous, olivaceous, shining, 7 to 11 cm long, 5 to 6 cm wide, the apex very shortly and obtusely acuminate, the base rounded, margins entire, the lower surface paler than the upper and with rather conspicuous black glands; lateral nerves

about 15 on each side of the midrib, spreading, these and the ultimate reticulations projecting and very distinct on both surfaces; petioles about 1 cm long. Panicles terminal, about 25 cm long, the flowers racemously arranged on the ultimate branchlets, the younger parts of the inflorescences more or less puberulent, the ultimate branchlets up to 5 cm in length. Flowers white, 5-merous, their pedicels about 0.5 mm long, the bracts ovate, nearly as long as the pedicels. Calyx puberulent, 2 mm in diameter, shallowly 5-lobed, with few brown, conspicuous glands, the lobes triangular-ovate, acute, 0.5 mm long and as broad as long, the margins slightly ciliate. Petals oblong-elliptic, 2 to 2.2 mm long, nearly glabrous outside, inside rather densely papillate-puberulent, the glands few, brown, conspicuous. Filaments 2 mm long, glabrous, the connectives glandular in the upper one-half.

MINDANAO, Bukidnon Subprovince, near Tankulan, *Bur. Sci.* 39069 Ramos & Edaño, July 20, 1920. In thickets along streams at an altitude of about 900 meters; locally known as *kalumai*.

This species belongs in the group with *Embelia javanica* A. DC. and among the Philippine forms is apparently most closely allied to *Embelia urdanetensis* Elm., from which it is distinguished by its larger, differently shaped leaves, which are rounded and not acute at the base.

EMBELIA LUZONIENSIS sp. nov. § *Pattara*.

Frutex scandens, inflorescentiis exceptis glaber; ramis 2 mm diametro; foliis oblongo-ovatis ad elliptico-ovatis, 5.5 ad 8 cm longis, chartaceis, utrinque angustatis, apice obtusis ad obscure obtuse acuminatis, basi acutis, in siccitate brunneis, subtus pallidioribus et plus minusve punctatis, nervis utrinque circiter 8, perspicuis; inflorescentiis plerumque axillaribus, racemosis, solitariis vel binis, circiter 2 cm longis, brunneo-glanduloso-pubescentibus; floribus manifeste pedicellatis, 5-meris, sepalis oblongis, 1 mm longis, glandulosis, pubescentibus; petalis ellipticis, symmetricis, rotundatis, 2 mm longis, glabris, glandulis paucis perspicuis instructis; filamentis glabris, 3 mm longis.

A scandent shrub, glabrous except the inflorescences, branches slender, terete, brown, about 2 mm in diameter, obscurely lenticellate. Leaves oblong-ovate to elliptic-ovate, 5.5 to 8 cm long, 3 to 4 cm wide, subequally narrowed to the obtuse or obscurely and obtusely acuminate apex and to the acute base, dark brown when dry, scarcely shining, the lower surface paler than the upper and distinctly glandular-punctate especially near

the margins, the glands very obscure on the upper surface; lateral nerves about 8 on each side of the midrib, curved-anastomosing, obscure on the upper surface, rather prominent on the lower surface, the reticulations not conspicuous; petioles 5 to 7 mm long. Racemes mostly axillary on the ultimate branchlets, solitary or in pairs, 1 to 2 cm long, rather many-flowered, the axis and pedicels glandular-pubescent with brown hairs. Flowers white, 5-merous, their pedicels slender, about 4 mm long, the bracts linear, 1 mm long. Sepals 5, nearly free, oblong, about 1 mm long, acute, glandular, pubescent. Petals elliptic, symmetrical, rounded, glabrous, about 2 mm long, with few conspicuous black glands. Filaments glabrous, 3 mm long.

LUZON, Nueva Vizcaya Province, Dupax, *Bur. Sci.* 20098 *McGregor*, January, 1913.

This species is apparently as closely allied to *Embelia tsjeriamcotta* A. DC. as to any other, but differs in numerous details.

EMBELIA OVATIFOLIA sp. nov. § *Pattara*.

Frutex scandens, inflorescentiis exceptis glaber, ramulis 1.5 mm diametro; foliis ovatis, chartaceis, 6 ad 8 cm longis, olivaceis, nitidis, acuminatis, basi late rotundatis, utrinque glandulis perspicuis instructis, nervis utrinque circiter 10, perspicuis; racemis axillaribus, solitariis, binis vel trinis, circiter 2 cm longis, pubescentibus; floribus perspicue pedicellatis, 5-meris, calycis lobis ovatis, acutis vel obtusis, 0.6 mm longis, margine obscure ciliatis, glandulis paucis magnis perspicuis instructis; fructibus globosis, 4 ad 5 mm diametro.

A scandent shrub, glabrous except the glandular-pubescent racemes, the branches mostly grayish, about 5 mm in diameter, obscurely lenticellate, the branchlets slender, 1.5 mm in diameter, brownish. Leaves ovate, chartaceous, olivaceous, shining, 6 to 8 cm long, 4 to 5 cm wide, entire, the apex obtusely acuminate, the base broadly rounded, both surfaces conspicuously glandular, the glands black; lateral nerves about 10 on each side of the midrib, slender, distinct; petioles 8 to 10 mm long. Racemes axillary, solitary or in pairs or in threes, about 2 cm long, the pedicels 3 or 4 mm long, pubescent, the bracts lanceolate-acuminate from a broad base, puberulent, about 1 mm long, persistent. Calyx 2 mm in diameter, the lobes ovate, acute or obtuse, 0.6 mm long, with a few large and conspicuous, reddish glands in the upper one-half, the margin obscurely ciliate. Fruits globose, 4 to 5 mm in diameter.

MINDANAO, Bukidnon Subprovince, Mount Dumalupihan, *Bur. Sci.* 39001 Ramos & Edaño, July 29, 1920. On forested slopes, altitude about 1,200 meters.

A species manifestly belonging in the same group as *Embelia luzoniensis* Merr. and closely allied to that species. Among other characters it is easily distinguished by its very prominently glandular leaves, the black glands being conspicuous on both surfaces.

RAPANEA Aublet

RAPANEA ANGUSTIFOLIA sp. nov.

Frutex glaber; foliis numerosis, subcoriaceis, anguste oblongis ad lanceolatis, 4.5 ad 6 cm longis, 7 ad 10 mm latis, apice obtusis, basi acutis, in siccitate olivaceis, nitidis, subtus plus minusve glanduloso-punctatis, nervis inconspicuis; fructibus globosis, 3 mm diametro, in $\frac{1}{3}$ superiore parte perspicue atroglandulosis; floribus 4-meris, calycis lobis late ovatis, obtusis, perspicue glandulosis, margine ciliatis.

A glabrous shrub about 3 m high, the branches terete, dark reddish brown. Leaves numerous, somewhat crowded, subcoriaceous, narrowly oblong to lanceolate, 4.5 to 6 cm long, 7 to 10 mm wide, the apex obtuse, base acute, the upper surface olivaceous, shining, the lower surface paler and more or less glandular-punctate, the glands nearly black, especially conspicuous along the margins; lateral nerves about 10 on each side of the midrib, slender, inconspicuous; petioles 3 to 4 mm long. Fruits globose, about 3 mm in diameter, conspicuously glandular in the upper one-third, the glands black. Pedicels 2 mm long. Flowers 4-merous, the persistent calyx rather conspicuously glandular, the lobes broadly ovate, obtuse, the margins more or less ciliate.

LUZON, Ilocos Norte Province, Mount Magatapan, *Bur. Sci.* 33243 Ramos, August 8, 1918, on slopes apparently at an altitude of about 1,000 meters. The same species is represented by a sterile specimen from Mount Piao collected by Merritt & Darling in November, 1908.

A species belonging in the group with *Rapanea philippinensis* Mez, but distinguished by its smaller, narrower leaves and by its conspicuously glandular-punctate fruits.

RAPANEA OBLONGIBACCA sp. nov.

Frutex glaber; foliis chartaceis ad subcoriaceis, oblongis ad oblongo-lanceolatis, in siccitate brunneis, nitidis, 3 ad 6 cm longis, 0.8 ad 1.8 cm latis, utrinque angustatis, apice acutis vel obtusis,

basi cuneatis, subtus plus minusve glandulosis, nervis inconspicuis; fructibus axillaribus, plerumque solitariis, oblongo-ovoideis, 5 ad 7 mm longis, apice glanduloso-punctatis; floribus 5-meris, calycis persistentibus, 3 mm diametro, lobis ovatis, acutis, perspicue glandulosis, margine ciliatis.

A glabrous shrub or small tree about 3 m high, the branches and branchlets nearly black when dry, terete, the scars not prominent. Leaves chartaceous to subcoriaceous, oblong to oblong-lanceolate, usually dark brown when dry, shining, the lower surface much paler than the upper, 3 to 6 cm long, 0.8 to 1.8 cm wide, narrowed upward to the acute or obtuse apex and below to the cuneate base, more or less glandular-punctate, the glands conspicuous and closely arranged along the margins; lateral nerves very inconspicuous, 8 to 10 on each side of the midrib; petioles 2 to 3 mm long. Fruits axillary, mostly solitary, oblong-ovoid, 5 to 7 mm long, brown when dry, glandular-punctate with black glands at the apex, their pedicels 2.5 mm long. Flowers 5-merous, the persistent calyx 3 mm in diameter, the lobes ovate, acute, 1 to 1.2 mm long, conspicuously glandular, the margins ciliate.

LUZON, Ilocos Norte Province, *Bur. Sci.* 33256 (type), 33311 Ramos, August, 1918. On forested slopes, altitude about 1,000 meters.

A species strongly characterized among the Philippine forms by its oblong-ovoid rather than globose fruits.

SAPOTACEAE

MADHUCA Gmelin

MADHUCA PHILIPPINENSIS sp. nov.

Species *M. betis* valde affinis, differt foliis subtus glabris vel subglabris.

A tree reaching a height of about 25 m. Branches terete, more or less rugose, glabrous, the young branchlets usually densely ferruginous-pubescent. Leaves crowded at the apices of the branchlets, oblong-ob lanceolate, chartaceous, 14 to 22 cm long, 4 to 8 cm wide, the upper surface glabrous, strongly shining, greenish olivaceous to brown-olivaceous when dry, the lower surface glabrous or slightly pubescent on the midrib, paler than the upper, the apex shortly acuminate, more or less narrowed below to the acute or somewhat obtuse base; lateral nerves about 18 on each side of the midrib, somewhat impressed on the upper surface, prominent on the lower surface; petioles rather

densely pubescent, 2.5 to 3.5 cm long; stipules linear, pubescent, caducous, 9 to 13 mm long. Flowers crowded on the ultimate branchlets with or just below the leaves, the pedicels and calyces densely and softly ferruginous-pubescent, the former 1.5 to 2 cm long. Calyx lobes 4, 2-seriate, oblong-elliptic, obtuse, about 12 mm long, 6 mm wide. Ovary glabrous, 10-celled. Petals and stamens not seen. Fruits oblong-ellipsoid, brown, obtuse, about 4 cm long.

LUZON, Camarines Province, Nabua, *For. Bur. 28399 Labitag*, April 30, 1921. In primary dipterocarp forest at an altitude of about 200 meters, with the local name *banites*. The same species is represented by *Merrill 2601* from Tayabas Province, Luzon, as well as by imperfect sterile specimens including seedlings collected by *Ware, Hagger*, and *Garcia* in Camarines and Tayabas Provinces. A sterile specimen from Cotabato District, Mindanao, collected by *Hutchinson*, undoubtedly represents the same species. Additional native names are *manilig* (Mag.); *betis* and *betis lalake* (Tag.).

This species is manifestly closely allied to *Madhuca betis* (Blanco) Merr. and several of the specimens cited above were originally referred to that species. *Madhuca betis*, however, has the leaves very densely and softly pubescent on the lower surface, while in the present species they are glabrous or nearly so on both surfaces.

OLEACEAE

LINOCIERA Swartz

LINOCIERA LONGIFOLIA sp. nov.

Arbor parva, glabra; foliis lanceolatis ad oblongo-lanceolatis, 22 ad 30 cm longis, 5 ad 7 cm latis, coriaceis, utrinque angustatis, basi plus minusve decurrento-acuminatis, apice obtusis, nervis utrinque 13 ad 15, tenuibus, anastomosantibus, reticulis subobsoletis; inflorescentiis axillaribus, solitariis, paniculatis, 4 cm longis, floribus subumbellatim dispositis, pedicellatis; calycis cupulatis, 1.5 mm diametro, breviter 4-lobatis, lobis triangulari-ovatis, acutis vel obtusis.

A glabrous tree about 10 m high, the branchlets distinctly compressed at the nodes. Leaves lanceolate to oblong-lanceolate, 22 to 30 cm long, 5 to 7 cm wide, coriaceous, rather pale when dry, opposite, entire, narrowed below to the somewhat decurrent-acuminate base and above to the obtuse apex, more or less verruculose; nerves 13 to 15 on each side of the midrib, slender, slightly projecting on the lower surface, anastomosing, the retic-

ulations very lax, often obsolete; petioles stout, 8 to 10 mm long. Inflorescences axillary, solitary, paniculate, about 4 cm long, the branches spreading, the lower ones 1 to 1.4 cm long, the flowers for the most part subumbellately arranged near the apices of the branches; bracts lanceolate, acuminate, slightly pubescent, 4 to 5 mm long; pedicels about 3 mm long. Calyx cup-shaped, about 1.5 mm in diameter, 4-lobed, the lobes triangular-ovate, acute or obtuse, less than 0.4 mm long. Corolla not seen. Ovary ovoid, glabrous; style 0.5 mm long.

MINDANAO, Lanao District, Bolut River, *For. Bur.* 20626 *Miranda*, June 14, 1913. In forests at sea level.

A species having more the general appearance of *Olea* than of *Linociera*, well characterized by its elongated leaves. When perfect flowers are available it may prove to belong to the former genus. Its alliance is manifestly with *Linociera philippinensis* Merr., from which it is at once distinguished by its vegetative characters.

LOGANIACEAE

GENIOSTOMA Forster

GENIOSTOMA ACUMINATISSIMA sp. nov.

Frutex glaber, ramis teretibus; foliis chartaceis, oblongo-ellipticis ad lanceolatis, nitidis, 8 ad 12 cm longis, utrinque angustatis, apice tenuiter caudato-acuminatis, basi cuneatis, nervis utrinque 8 ad 10; cymis tenuiter pedunculatis, axillaribus, solitariis, paucifloris, 2 ad 3 cm longis; floribus circiter 1 cm longis, intus villosis.

A glabrous shrub or small tree, the branches slender, terete, the branchlets black when dry. Leaves chartaceous, dark-colored when dry, shining, oblong-elliptic to lanceolate, 8 to 12 cm long, 2.5 to 4.5 cm wide, subequally narrowed to the cuneate base and to the slenderly caudate-acuminate apex; primary lateral nerves 8 to 10 on each side of the midrib, distinct, curved, anastomosing, the reticulations distinct, slender; petioles 3 to 5 mm long; stipules lanceolate, acuminate, 1.5 to 2 mm long. Cymes solitary, few-flowered, 2 to 3 cm long, the peduncles slender, up to 2 cm long, the pedicels 2 mm long. Flowers white, black when dry. Calyx about 2.2 mm long, somewhat urceolate, the teeth triangular, short. Corolla glabrous outside, villous inside, about 1 cm long, the tube 6 mm long, the lobes 4, oblong, obtuse, 4 mm long, villous inside. Style 8 mm long. Fruits about 8 mm long, black when dry, rugose, strongly ventricose, obtuse, base decurrent-acuminate.

MINDANAO, Bukidnon Subprovince, Mount Candoon, *Bur. Sci.* 38837 Ramos & Edaña, June 25, 1920. In damp forests, altitude about 1,000 meters.

A species strongly characterized by its lax, elongated, slenderly peduncled cymes and its caudate-acuminate leaves.

STRYCHNOS Linnaeus

STRYCHNOS CENABREI sp. nov. § *Penicillatae*.

Frutex scandens, ramulis et inflorescentiis et subtus foliis ad costa nervisque plus minusve ferrugineo-pubescentibus; foliis triplinerviis, chartaceis, olivaceis, nitidissimis, ellipticis ad oblongo-ellipticis, usque ad 12 cm longis, utrinque subaequaliter angustatis, apice acute acuminatis, basi acutis vel decurrentibus; cymis circiter 2 cm longis; floribus 6- vel 5-meris, circiter 3.5 mm longis, corollae lobi linea pilorum erectorum ad basin instructi, antherae filamenta in tubo corollae inserta; ovarium glabrum; antherae basi leviter barbatae; fructibus globosus, 1.5 cm diametro; seminibus solitariis.

A scandent woody vine, glabrous except the more or less ferruginous-pubescent branchlets, inflorescences, and younger leaves on the nerves beneath. Branches terete, dark-colored, glabrous, the younger branchlets about 1.5 mm in diameter, appressed ferruginous-pubescent with short, scattered hairs, ultimately glabrous or nearly so. Leaves elliptic to oblong-elliptic, chartaceous, 7 to 12 cm long, 3.5 to 5 cm wide, subequally narrowed to the acute or decurrent, 3-plinerved base and to the sharply acuminate apex, the upper surface olivaceous, strongly shining, the lower surface shining and when young more or less ferruginous-pubescent on the midrib and primary nerves, the basal nerves leaving the midrib 5 to 10 mm above the base of the leaf and extending nearly or quite to the apex, the reticulations distinct on both surfaces; petioles 5 to 7 mm long, ferruginous-pubescent, ultimately glabrous. Cymes axillary, ferruginous-pubescent, short-peduncled, in anthesis about 2 cm long, in fruit up to 3 cm in length, the peduncles 5 to 7 mm long. Flowers 5- or, more usually, 6-merous, about 3.5 mm long, their pedicels 2 mm long, the bracteoles narrowly ovate, acute, 1 mm long. Calyx about 2 mm in diameter, the tube short, the lobes broadly ovate to orbicular-ovate, 1 to 1.2 mm long, somewhat pubescent, the margins minutely ciliate. Corolla tube about 2 mm long, the lobes nearly as long as the tube, oblong-ovate, acute or obtuse, minutely puberulent externally, bearded at the base inside with numerous stiff hairs about 1 mm in length. Ovary ovoid, glabrous, 1 mm long; style slen-

der, glabrous, equaling the ovary. Stamens 5 or 6, the filaments inserted in the tube, the anthers oblong-ovate, 1.2 mm long, slightly apiculate and sparingly bearded at the base. Fruits globose, 1.5 cm in diameter, red when fresh, brown when dry, the pericarp rather thin, crustaceous. Seed solitary, about 1 cm in diameter, 5 mm thick, rather translucent and somewhat rugose when dry.

LUZON, Nueva Vizcaya, Uakal near Bayombong, *For. Bur.* 28546 *Cenabre*, June 19, 1921. In forests along river banks, altitude about 450 meters.

A species strongly characterized by its usually 6-merous flowers, short cymes, 3-plinerved, strongly shining leaves, and its small 1-seeded fruits. It is probably nearest to *S. impressinervis* A. W. Hill.

APOCYNACEAE

TABERNAEMONTANA Linnaeus

TABERNAEMONTANA MINDORENSIS sp. nov.

Frutex glaber, circiter 2 m alta, ramis ramulisque pallidis, tenuibus; foliis oblongo-lanceolatis, membranaceis, olivaceis, perspicue caudato-acuminatis, basi acutis, 5 ad 8 cm longis, nervis utrinque circiter 9, tenuibus, distinctis; cymis axillaribus, paucifloris, laxis, 1.5 ad 2 cm longis, corollae tubo 5 mm longo (alabastro) calycis lobis intus glandulosis; folliculis 2 ad 2.5 cm longis, inaequilateraliter oblongo-ovoideis, acuminatis, leviter carinatis, seminibus circiter 9.

A glabrous shrub about 2 m high, the branches and branchlets slender, terete, pale grayish. Leaves of each pair equal or more or less unequal, oblong-lanceolate, membranaceous, olivaceous, somewhat shining, 5 to 8 cm long, 1 to 2 cm wide, narrowed upward to the slenderly caudate-acuminate apex and below to the cuneate base, the lower surface paler than the upper; lateral nerves about 9 on each side of the midrib, slender, distinct, the reticulations lax, obscure; petioles 2 to 4 mm long. Cymes axillary, lax, few-flowered, 1.5 to 2 cm long. Mature flowers not seen, their pedicels about 5 to 8 mm long. Calyx lobes ovate, acute, 0.5 mm long, each with a small gland or appendage near the base inside. Corolla tube (in bud) slender, about 5 mm long, somewhat inflated in the upper part, the lobes (in bud) 2.5 mm long, inequilateral. Anthers 1.5 mm long. Follicles 2 to 2.5 cm long, red, glabrous, inequilaterally oblong-ovoid, somewhat gibbous, smooth, with 3 or 4 longitudinal ridges, these often ob-

scure, the pericarp thin, rather fragile. Seeds about 9, brown, irregular, 6 to 7 mm long.

MINDORO, Paluan, *Bur. Sci.* 39577 (type), 39576 Ramos, April 1, 1921. On forested slopes at an altitude of about 500 meters.

A species belonging in the group with *Tabernaemontana caudata* Merr., but it has larger, differently shaped leaves and different inflorescences. From *T. mindanaensis* Merr. it is distinguished by its smaller caudate-acuminate leaves and its entirely different fruits.

KOPSIA Blume

KOPSIA GRANDIFLORA sp. nov.

Frutex circiter 3 m altus, ramulis puberulis et inflorescentiis exceptis glaber; foliis chartaceis vel subcoriaceis, ellipticis ad oblongo-ellipticis, 10 ad 15 cm longis, nitidis, apice obtuse acuminatis, basi late acutis, nervis utrinque circiter 15 cum reticulis utrinque distinctis; inflorescentiis pedunculatis, depauperatocymosis vel dichotome ramosis, paucifloris, pedunculo 3 ad 6 cm longo; bracteis orbiculari-ovatis, rotundatis, pubescentibus, 2.5 mm longis; calycis lobis elliptico-ovatis, rotundatis, 3 mm longis, pubescentibus; corollae tubo 3.7 cm longo, apice leviter incrassato, intus in partibus superioribus villosa, lobis obovatis ad elliptico-obovatis, 2.5 cm longis, 10 ad 14 mm latis, rotundatis.

A shrub about 3 m high, the younger branchlets, bracts, and calyces sparingly puberulent or pubescent. Branches glabrous, somewhat rugose when dry. Leaves chartaceous to subcoriaceous, elliptic to oblong-elliptic, 10 to 15 cm long, 4 to 6 cm wide, grayish olivaceous, shining, narrowed above to the obtusely acuminate apex and below to the broadly acute base; lateral nerves about 15 on each side of the midrib, rather prominent on both surfaces as are the primary and rather close secondary reticulations; petioles about 5 mm long. Inflorescences terminal, peduncled, the peduncles 3 to 6 cm long, the flowers in depauperate cymes or the peduncles dichotomously branched at their apices, the flowers spicately arranged on the short branches. Bracts orbicular-ovate, somewhat pubescent, about 2.5 mm long, imbricate near the apices of the branchlets, somewhat scattered below, rounded and somewhat keeled. Calyx lobes elliptic-ovate, rounded, 3 mm long, somewhat pubescent, their margins ciliate. Corolla tube cylindric, glabrous externally, somewhat villous inside in the upper part, slightly enlarged at the apex, about 3.7 cm long, the lobes white, obovate to elliptic-obovate, rounded, 2.5 cm long, 10 to 14 mm wide.

LUZON, Camarines Province, Paracale, *Bur. Sci.* 33691 Ramos & Edaño, November, 1918. In damp forests along small streams at low altitudes.

A species manifestly belonging in the group with *Kopsia fruticosa* DC. and *K. albiflora* Boerl., differing essentially from both of these in its larger flowers.

VERBENACEAE

CLERODENDRON Linnaeus

CLERODENDRON LUZONIENSE sp. nov.

Frutex erectus, glaber, ramis tenuibus; foliis membranaceis, integris, ellipticis ad oblongo-ellipticis, 13 ad 18 cm longis, olivaceis, nitidis, tenuiter acuminatis, basi cuneatis, nervis utrinque 6 vel 7, subtus perspicuis; paniculis terminalibus, glabris vel puberulis, laxis, paucifloris, ramis patulis, paucis, plerumque 3-floris, bracteis bracteolisque linearis, 4 ad 6 mm longis. Calycis 5-lobatis, lobis lanceolatis, acuminatis, 3 mm longis. Corollae tubo 5 ad 6 cm longo, lobis oblongo-ellipticis, obtusis, circiter 1 cm longis.

A glabrous, erect shrub, the branches slender, pale. Leaves membranaceous, entire, elliptic to oblong-elliptic, 13 to 18 cm long, 6 to 7 cm wide, somewhat olivaceous and shining on both surfaces when dry or the lower surface somewhat paler than the upper, not at all glandular, the apex rather slenderly acuminate, base cuneate; lateral nerves 6 or 7 on each side of the midrib, slender, rather prominent on the lower surface, the reticulations very lax; petioles 2 to 5 cm long. Panicles terminal, peduncled, glabrous or very slightly puberulent, lax, few-flowered, the peduncle and rachis up to 12 cm long, the branches few, spreading, each usually 3-flowered; bracts linear, acuminate, 4 to 6 mm long, the bracteoles similar, smaller, the pedicels 1 to 1.6 cm long. Calyx green, 5 to 7 mm long, the base cuneate, the lobes 5, lanceolate, acuminate, about 3 mm long. Corolla white, the tube slender, 5 to 6 cm long, straight, the lobes spreading, oblong-elliptic, obtuse, about 1 cm long.

LUZON, Camarines Province, Paracale, *Bur. Sci.* 33784 (type), 33779 Ramos & Edaño, December 22, 1918. In damp forests along small streams at low altitudes.

The alliance of this species is manifestly with *C. klemmei* Elm., from which it is distinguished by its differently shaped, relatively much broader leaves, longer flowers, lax, few-flowered inflorescences, and narrower calyx teeth.

CALLICARPA Linnaeus

CALLICARPA MAGNIFOLIA sp. nov.

Frutex vel arbor parva, ramulis et subtus foliis dense fulvo-tomentosis; foliis eglandulosis, oppositis, subcoriaceis, late elliptico-ovatis, 22 ad 27 cm longis, usque ad 20 cm latis, integris vel sursum obscurissime denticulatis, late acuminatis, basi rotundatis, supra glabris, olivaceis, nitidis, nervis utrinque circiter 10, valde perspicuis; cymis axillaribus, sub fructo usque ad 6 cm longis et 9 mm latis; calycibus membranaceis, 3 mm longis, breviter 4-lobatis; fructibus globosis, glabris, 3 mm diametro, disco valde accrescente, subgloboso, usque ad 1 cm diametro, densissime fulvo-tomentoso.

A shrub or small tree, the branchlets and the lower surface of the leaves densely fulvous-tomentose with rather soft, plumose and stellate hairs, the indumentum on the leaves ultimately deciduous; branches terete or somewhat compressed at the nodes, pale grayish, glabrous, about 6 mm in diameter, the branchlets reddish brown. Leaves opposite, subcoriaceous, broadly elliptic-ovate, 22 to 27 cm long, 17 to 20 cm wide, entire or very obscurely and remotely denticulate near the apex, the base broadly rounded or sometimes subacute, the apex shortly and broadly acuminate, the upper surface olivaceous, smooth, glabrous, shining, the lower surface paler, not at all glandular; lateral nerves about 10 on each side of the midrib, very prominent, the primary reticulations subparallel, distinct; petioles about 5 cm long, densely tomentose. Cymes from the axils of fallen leaves, in fruit about 6 cm long and up to 9 cm wide. Calyx membranaceous, cup-shaped, about 3 mm long, shortly 4-lobed. Fruit globose, glabrous, about 3 mm in diameter, nearly surrounded by the densely fulvous-tomentose, greatly enlarged disk, which is subglobose and up to 10 mm in diameter. Bracteoles linear, pubescent, 3 to 5 mm long.

LUZON, Kalinga Subprovince, Mount Masingit, *Bur. Sci.* 37563 Ramos & Edaño, February 17, 1920. In forests, altitude about 1,200 meters, with the local name *agnai*.

This species is remarkable for its greatly enlarged, densely fulvous-tomentose disk which surrounds and nearly incloses the fruit, a character that is unknown to me for any other described species of the genus. It is further remarkable for its unusually large leaves which are eglandular and densely tomentose on the lower surface.

VITEX Linnaeus

VITEX UNIFOLIOLATA sp. nov.

Frutex vel arbor parva, inflorescentiis parce pubescentibus exceptis glabra, ramulis quadrangulatis, 3 mm diametro; foliis unifoliolatis, coriaceis, nitidis, integris, oblongis, 20 ad 27 cm longis, subtus dense puncticulatis, acuminatis, basi rotundatis, supra plus minusve bullatis, nervis utrinque 9 ad 12, valde perspicuis; inflorescentiis solitariis, tenuibus, terminalibus, circiter 40 cm longis, ramis primariis 1 vel 2, valde elongatis, cymis paucis, distantibus, paucifloris, 3 ad 4 cm longis; calycibus cupulatis, aequaliter 5-lobatis, lobis ovatis, obtusis, 0.5 mm longis; corolla 11 mm longa, bilabiata; fructibus junioribus glabris, calycis valde accrescentibus.

A shrub or small tree, glabrous except the inflorescences, the branches pale grayish, somewhat 4-angled, the ultimate ones about 3 mm in diameter. Leaves simple, the petioles about 1 cm long, the leaflets coriaceous, pale olivaceous when dry, oblong, 20 to 27 cm long, 7 to 10 cm wide, entire, shining, the upper surface more or less bullate, the lower surface slightly paler than the upper and densely puncticulate, base rounded, apex rather slenderly acuminate; lateral nerves 9 to 12 on each side of the midrib, prominent on both surfaces, curved-anastomosing, the reticulations lax, very prominent. Inflorescences solitary, terminal, slender, about 40 cm long, the peduncle about 6 cm long, 4-angled, rather slender, about 2.5 mm in diameter, the primary branches 1 or 2 only, greatly elongated, slightly pubescent, the individual cymes widely scattered, few-flowered, 3 to 4 cm long. Flowers blue. Calyx cup-shaped, about 3 mm long, equally 5-lobed, the lobes ovate, obtuse, 0.5 mm long, appressed-pubescent with short hairs. Corolla 11 mm long, the tube 5 mm long, slightly pubescent outside; lower lip 3-lobed, the middle lobe large, orbicular, glabrous, entire, about 5 mm in diameter, the two lateral ones elliptic, rounded, 3 mm long; upper lip 2 mm long, cleft into two broadly ovate, obtuse lobes; filaments 3 to 4 mm long, somewhat exserted, villous below. Young fruit glabrous or nearly so, inclosed by the accrescent calyx.

MINDANAO, Zamboanga District, Malangas, *Bur. Sci.* 37048 Ramos & Edaña, October 27, 1919. In forests along streams at low altitudes, locally known as *babako*.

The alliance of this species is manifestly with *Vitex clarkeana* King and Gamble of the Malay Peninsula and Borneo, from which it differs in its very slender inflorescences; in details of its

corolla, the middle lobe of the lower lip being orbicular, entire, and glabrous; and in its glabrous, not tawny-pubescent fruits.

In H. Lam's recent treatment of the Verbenaceae of the Malayan Archipelago certain reductions of proposed new species must be made: *Vitex curranii* H. Lam is identical with *Vitex aherniana* Merr.; *Vitex merrillii* H. Lam is identical with *V. longifolia* Merr., which in turn is a *Teijsmanniodendron* perhaps not distinct from *T. bogoriense* Koord.; and *Vitex glandulosa* H. Lam is identical with *V. parviflora* Juss., of which *V. littoralis* Decne. is a synonym.

SCROPHULARIACEAE

LIMNOPHILA R. Brown

LIMNOPHILA OBOVATA sp. nov.

Herba subaquatica procumbens vel adscendens, leviter ramosa, caulibus usque ad 20 cm longis, glabris vel minutissime furfuraceis; foliis oppositis, obovatis vel oblongo-obovatis, acutis, breviter petiolatis, usque ad 2.5 cm longis, basi angustatis, margine serratis; floribus solitariis, axillaribus, sessilibus, calycis glabris, profunde 5-fidis, laciniis lineari-lanceolatis; corolla alba, 12 ad 13 mm longa.

A subaquatic, aromatic, procumbent or ascending plant, the stems simple or sparingly branched, 20 cm in length or less, glabrous or very minutely furfuraceous. Leaves opposite, ovate to oblong-obovate, sometimes subrhomboid, 1.5 to 2.5 cm long, 6 to 12 mm wide, acute, margins serrate, base gradually narrowed to the short petiole, the lower surface glandular-punctate. Flowers axillary, solitary, sessile, the bracts linear, 5 mm long. Calyx glabrous, the segments 5, free nearly to the base, linear-lanceolate, acuminate, about 7 mm long, 1 mm wide. Corolla white, 12 to 13 mm long. Capsule oblong-ovoid, about 3.5 mm long. Seeds very numerous, black.

PALAWAN, Ulugan Bay, *Merrill 7227* (type), September, 1910. BRITISH NORTH BORNEO, Batu Lima, near Sandakan, *Ramos 1385*, October, 1920. Along small streams in shaded places, often in shallow water, at low altitudes.

GESNERIACEAE

DICHROTRICHUM Reinwardt

DICHROTRICHUM CORIACEUM sp. nov.

Frutex scandens, glaber vel subglaber, ramulis circiter 5 mm diametro; foliis coriaceis, in paribus valde inaequimagnis dif-

formibusque, majoribus oblongis, 7 ad 11 cm longis, longe petiolatis, basi longe decurrentibus, minoribus breviter petiolatis, ovatis, obtusis, circiter 1 cm longis; infructescentiis umbellatis vel depauperato-cymosis, longe pedunculatis, calycis cupulatis, circiter 4 mm longis, lobis oblongis, truncato-obtusis, circiter 1.5 mm longis; folliculis 18 cm longis, 2 mm diametro.

A scandent, nearly glabrous shrub, the branchlets apparently somewhat fleshy, pale brownish when dry, somewhat angular, about 5 mm in diameter, sparingly appressed-pubescent. Leaves coriaceous, obscurely crenate or undulate-crenate, sometimes nearly entire, in very unequal pairs, the upper surface dull olivaceous, the lower surface pale brownish; larger leaves of each pair oblong, 7 to 11 cm long, 2.5 to 4.5 cm wide, long-petioled, acute to very shortly and obtusely acuminate, the base long-decurrent; lateral nerves about 6 on each side of the midrib, prominent, curved-ascending, the reticulations obsolete or nearly so; petioles 2 to 5 cm long; smaller leaves of each pair ovate to oblong-ovate, obtuse, entire, about 1 cm long, very shortly petioled. Infructescences long-peduncled, the peduncles about 25 cm long, the flowers umbellately arranged or depauperate-cymose at the apex, the subtending bracts oblong-elliptic to spatulate, 3 to 8 mm long. Calyx cup-shaped, about 4 mm long, slightly pubescent, the base narrowed, the lobes 5, oblong, truncate-obtuse, about 1.5 mm long; pedicels slightly pubescent, about 1.5 cm long. Follicles narrowly cylindric, about 18 cm long, 2 mm in diameter, glabrous; seeds very numerous, brown, about 1 mm long with a single hair at each end 2 to 2.5 mm in length.

MINDANAO, Bukidnon Subprovince, Mount Candoon, *Bur. Sci.* 38924 Ramos & Edaño, July 3, 1920, in the mossy forest at an altitude of about 1,600 meters.

A species allied to *Dichrotrichum glabrum* Copel., from which it is distinguished by its coriaceous and nearly entire leaves.

TRICHOSPORUM Jack

TRICHOSPORUM MINDANAENSE sp. nov. § *Holocalyx*.

Frutex scandens, leviter pilosus; foliis coriaceis, oblongis, 2.5 ad 3.5 cm longis, obtusis, basi plerumque rotundatis, junioribus leviter pilosis, vetustioribus glabris, nervis obsoletis; floribus 4 cm longis, leviter curvatis, pedunculis brevibus, 2-floris; calycis cylindraceis, 12 mm longis, leviter pilosis, lobis ovatis, obtusis, 2 mm longis; corollae tubo 2.5 cm longo, leviter piloso, lobis

ovatis, obtusis, 1 cm longis; antheris leviter exsertis; ovario glabro; folliculis 13 ad 17 cm longis, 4 mm diametro.

A scandent, apparently fleshy vine, the younger branches, inflorescences, and the leaves very sparingly pubescent or pilose. Branches usually reddish brown, glabrous, about 3 mm in diameter. Leaves coriaceous, oblong, 2.5 to 3.5 cm long, 1 to 1.5 cm wide, rather pale when dry, somewhat narrowed upward to the obtuse apex, the base usually rounded, the margins cartilaginous and somewhat recurved when dry, the midrib obscure or sometimes obsolete on the upper surface, rather prominent on the lower surface, the lateral nerves obsolete or nearly so, when young very sparingly pilose, ultimately glabrous; petioles 3 to 4 mm long, at first sparingly pilose, ultimately glabrous. Flowers red, about 4 cm long, somewhat curved, the peduncles about 5 mm long, each 2-flowered and terminal and in the uppermost axils, the pedicels 1 cm in length, somewhat pilose. Calyx 12 mm long, slightly widened upward, the lobes very broadly ovate, obtuse, about 2 mm long. Corolla tube 8 to 10 mm wide when flattened, distinctly curved, about 2.5 cm long, sparingly pubescent externally with scattered jointed hairs, the mouth oblique, the lobes ovate, obtuse, up to 1 cm long. Stamens slightly exserted, the anthers 3 mm in length. Ovary and disk glabrous, the style about 3 mm long, villous. Follicles cylindric, glabrous, 13 to 17 cm long, about 4 mm in diameter, slightly curved. Seeds verruculose, 1.5 mm long, apical hair up to 6 mm long.

MINDANAO, Bukidnon Subprovince, Mount Candoon, *Bur. Sci.* 38869 (type) 38922 Ramos & Edaño, June and July, 1920. In the mossy forest, altitude 1,100 to 1,800 meters.

A species somewhat intermediate in characters between *Trichosporum malindangense* Merr. and *T. copelandii* Merr. (*Aeschynanthus camiguinensis* Kränzl., *A. serpens* Kränzl.), its calyces being twice as long as *T. copelandii* and *T. urdanetense* Elm., but much shorter and with much shorter corollas than is the case with *T. malindangense*.

CYRTANDRA Forster

CYRTANDRA RUFOTRICHA sp. nov. § *Decurrentes*.

Suffruticosa, erecta, usque ad 35 cm alta, simplex vel e basi parce ramosa, inflorescentiis subtus foliisque perspicue rufociliatis, ciliae elongatae, articulatae; foliis oppositis parum inaequalibus, oblanceolatis, chartaceis, 6 ad 12 cm longis, acutis,

deorsum angustatis, basi cuneatis, breviter petiolatis, margine crenato-dentatis, nervis utrinque 6 vel 7, perspicuis; inflorescentiis axillaribus, sessilibus vel breviter pedunculatis, plerumque 3-floris, floribus sessilibus, dense rufo-ciliatis, bracteis binis oblongo-ellipticis ad ovatis ciliatis 10 ad 12 mm longis deciduis instructis; calycis dense ciliatis, 9 ad 11 mm longis, lobis lanceolatis, caudato-acuminatis, tubo subaequantibus; ovario glabro; fructibus oblongo-cylindraxis, usque ad 11 mm longis, glabris.

An erect, suffrutescent, usually unbranched plant, or sparingly branched from the base, up to 35 cm high, the stems 2 to 3 mm in diameter, straw-colored, glabrous except at and below the nodes where they are conspicuously ciliate with castaneous, elongated, jointed hairs. Leaves opposite, those of each pair subsimilar in shape, but one usually about one-half as large as the other, chartaceous, oblanceolate to oblong-oblanceolate, 6 to 12 cm long, 2 to 3.5 cm wide, acute, narrowed below, base cuneate, margins crenate-dentate and usually conspicuously ciliate, the upper surface olivaceous, the lower pale, both surfaces conspicuously ciliate with dark-brown, spreading, elongated, jointed, rather stiff hairs, these widely scattered on the upper surface, mostly on the midrib, nerves, and reticulations beneath; lateral nerves 6 or 7 on each side of the midrib, prominent as are the lax reticulations; petioles ciliate, 5 to 12 mm long. Inflorescences axillary, the flowers few, umbellate or fascicled, the peduncles up to 4 mm long, ciliate, or wanting, the two bracts subtending the flowers oblong-elliptic to ovate, ciliate on both surfaces, 10 to 12 mm long, 5 to 10 mm wide, sessile, deciduous. Flowers sessile, usually three in each inflorescence. Calyx densely ciliate, the tube 5 to 6 mm long, the lobes lanceolate, caudate-acuminate, 4⁵ to 5 mm long. Corolla densely ciliate. Disk glabrous, crenulate, 1 mm high. Ovary and style glabrous. Fruit oblong-cylindric, glabrous, 8 to 12 mm long, 5 mm in diameter.

MINDANAO, Zamboanga District, Mount Tubuan, *Bur. Sci.* 36655 (type), 36689 *Ramos & Edaña*, October, 1919. In forests along streams at low altitudes.

A species strongly characterized by its indumentum, the rather stiff, jointed hairs up to 3.5 mm in length being brown to castaneous in color, occurring on the stems near and below the nodes, both surfaces of the leaves, and on the petioles, bracts, calyces, and corollas. It does not appear to be closely allied to any previously described form.

CYRTANDRA ACLADA sp. nov. § *Decurrentes*.

Frutex erectus, simplex, usque ad 1 m altus; foliis oppositis, aequalibus, chartaceis vel subcoriaceis, oblongis, usque ad 20 cm longis, petiolatis, supra olivaceis, glabris, subtus pallidis, ad costā nervisque leviter pubescentibus, basi acutis, apice breviter acuminatis, margine sursum obscure crenulato-denticulatis, nervis utrinque 7 vel 8, perspicuis; inflorescentiis caulinis, basifloris, brevissime pedunculatis, floribus paucis, subumbellatim dispositis vel fasciculatis, 4.5 cm longis, extus villosis.

An erect unbranched shrub up to 1 m high, the younger parts obscurely pubescent. Stems glabrous, pale brownish or grayish, up to 7 mm in diameter, the lower part leafless. Leaves opposite, those of each pair equal or subequal, chartaceous to subcoriaceous, 15 to 20 cm long, 5 to 7 cm wide, the apex distinctly acuminate, base equilateral, cuneate, the margins in the upper part obscurely crenulate-denticulate, the upper surface dark-olivaceous, glabrous, the lower surface pale and obscurely pubescent on the midrib and nerves; lateral nerves 7 or 8 on each side of the midrib, rather prominent, the reticulations slender, lax; petioles 2.5 to 4 cm long, glabrous or nearly so. Inflorescences cauline, at the very base of the stem, sometimes from the roots, shortly peduncled, subumbellate, rather few-flowered or the umbels sometimes reduced to sessile fascicles. Flowers few, 4.5 cm long, their pedicels up to 1 cm long, the bracts few, 10 to 12 mm long, membranaceous, deciduous, linear-lanceolate. Calyx about 24 mm long, more or less pubescent, slender, cylindric, the lobes lanceolate, caudate-acuminate, 6 to 8 mm long. Corolla white, sparingly pilose externally with long weak hairs, the lower 2 cm narrow, then widened. Filaments 6 mm long, glabrous; anthers 2 mm long. Disk cylindric, glabrous, 2.5 mm long, somewhat crenate. Ovary lanceolate, glabrous, about 1 cm long; style pubescent in the upper two-thirds, about 14 mm long; stigma oblique. Fruits cylindric, glabrous, 2 to 2.5 cm long, 5 mm in diameter.

MINDANAO, Zamboanga District, Malangas and Mount Tubuan, *Bur. Sci.* 36616 (type), 36907 *Ramos & Edaña*, October, 1919. On damp forested slopes at low and medium altitudes.

A species belonging in the group with *Cyrtandra radCIFlora* C. B. Clarke, but with different inflorescences, larger flowers, much longer calyces, glabrous ovaries, etc. Among the Philippine species it is apparently most closely allied to *Cyrtandra tecomiflora* Kränzl., but has very different vegetative characters.

CYRTANDRA BARNESII sp. nov. § *Dissimiles*.

Frutex erectus, 1 ad 3 m altus, perspicue ciliatus; foliis oppositis, in paribus valde inaequalibus, majoribus petiolatis, oblongo-ob lanceolatis ad oblongo-obovatis, 15 ad 22 cm longis, acuminatis, basi cuneatis, nervis utrinque circiter 8, minoribus sessilibus, ovatis, 2 ad 5 cm longis, perspicue lateque cordatis; floribus 4 cm longis, paucis, fasciculatis vel depauperato-umbellatis; bracteis 2 vel 3, elliptico-ovatis, 5 ad 8 mm longis; calycis pilosis, 15 ad 20 mm longis, lobis lanceolatis, caudato-acuminatis, 10 ad 12 mm longis; corolla pilosa, tubo deorsum angustato; ovario dense ferrugineo-piloso.

An erect shrub 1 to 3 m high, the branchlets, younger leaves, and inflorescences rather conspicuously ciliate with elongated, weak, jointed hairs, the older branches glabrous or nearly so. Leaves opposite, those of each pair very unequal in shape and size, the larger ones oblong-ob lanceolate to oblong-obovate, 15 to 22 cm long, 5 to 7 cm wide, rather prominently acuminate, narrowed below to the cuneate and usually distinctly inequilateral base, the margins rather coarsely toothed; lateral nerves about 8 on each side of the midrib, prominent on the lower surface, the reticulations distinct, lax; petioles 1.5 to 2 cm long; smaller leaves of each pair sessile or subsessile, ovate, 2 to 5 cm long, 1.5 to 3 cm wide, deeply cordate, scarcely acuminate, rather coarsely toothed. Both types of leaves are chartaceous, olivaceous on the upper surface, paler beneath and supplied on both surfaces with few to many, weak, spreading, jointed hairs. Inflorescences axillary, the flowers white, about 4 cm long, fascicled or in very greatly reduced, usually 2- or 3-flowered, short-peduncled umbels, the peduncles when present about 5 mm long and supplied with a whorl of 2 or 3 ovate to elliptic-ovate, somewhat pilose bracts 5 to 8 mm in length, the pedicels pilose, up to 1 cm in length or somewhat longer in fruit. Calyx 15 to 20 mm long, supplied with numerous, weak, jointed hairs, the tube broad, 5 to 8 mm long, the lobes lanceolate, caudate-acuminate, 10 to 12 mm long. Corolla tube rather narrowed below, widened above, sparingly pilose externally. Filaments 12 mm long, glabrous, the anthers ellipsoid, 3 mm long, connate throughout; staminodes slender, glabrous, 5 to 6 mm long. Disk cylindric or cup-shaped, glabrous, 2 mm long, shallowly lobed or crenate. Ovary oblong, densely subferruginous-pilose; styles about 11 mm long, pilose, somewhat thickened in the upper 4 mm and supplied with capitate-glandular hairs; stigma about 3 mm wide, 2 mm long, elliptic

in outline. Fruits oblong-ovoid, about 1 cm long, densely ferruginous-pilose.

LUZON, Benguet Province, Mount Tonglon, *For. Bur.* 920 Barnes (type), May, 1904, *Merrill* 7801, May, 1911. In very damp shaded ravines in the mossy forest, altitude about 2,000 meters. A form of the same species is represented by *Bur. Sci.* 37541, 37800 Ramos & Edaña from Bontoc and Kalinga Subprovinces, Luzon, February and March, 1920, these specimens differing from the type in being more densely pilose and in some of the larger leaves being obtuse or even obliquely cordate at the base.

This species has been confused with *Cyrtandra lobbii* C. B. Clarke, from which it differs radically in its very dissimilar leaves, the smaller one of the pair being sessile, ovate, deeply cordate and entirely different in shape and size from the larger one of each pair.

CYRTANDRA ZAMBOANGENSIS sp. nov. § *Dissimiles*.

Species *C. auriculatae* affinis, differt foliis omnibus petiolatis, crenatis, haud lobatis, paribus leviter inaequalibus, floribus multo minoribus, ovarium glabrum.

A slender, prostrate, conspicuously ciliate herb, the main stems up to 30 cm in length, rooting at their nodes, and with short ascending branches, the stems, branches, and branchlets densely ciliate with rather weak, jointed hairs. Leaves opposite, those of each pair unequal, all petioled, the larger one of each pair usually about twice as large as the smaller one but similar in shape, the larger ones elliptic, up to 4 cm long and 2.2 cm wide, the smaller ones up to 2 cm long and 1.5 cm wide, all membranaceous to chartaceous, olivaceous, obtuse or rounded, acute to rounded at the base, somewhat crenate, both surfaces supplied with numerous, long, weak, jointed hairs, these hairs 3 to 5 mm in length, pale; lateral nerves 4 or 5 on each side of the midrib, not prominent; petioles densely villous, 5 to 15 mm long. Flowers white, about 14 mm long, terminal or in the upper axils, the peduncles 1 to 2 mm long, pilose, 2-flowered, 2-bracteate, the bracts oblong, 3 mm long, somewhat pilose, the pedicels 1 to 1.5 mm in length. Calyx 6 mm long, pilose, the lobes 5, lanceolate, caudate-acuminate, as long as the tube. Corolla tube sparingly pilose in the lower half, the tube slender in the lower 5 to 6 mm, then widened, the lobes ovate, 3 to 3.5 mm long. Filaments 2.5 mm long, glabrous, the anthers 1 mm in length. Disk cup-shaped, glabrous, 1 mm high, crenulate. Ovary oblong-ovoid,

glabrous; style 7 mm long, somewhat pilose in the upper third. Fruits ovoid, 4 to 5 mm long.

MINDANAO, Zamboanga District, Malangas and Mount Tubuan, *Bur. Sci.* 37249 (type), 36685 Ramos & Edaña, October and November, 1919. On forested slopes at low altitudes.

A species with the habit and much the general appearance of *Cyrtandra auriculata* C. B. Clarke, differing radically in its much smaller flowers and in its crenate not lobed leaves which are all petioled and similar in shape, the smaller one of each pair being usually about one-half as large as the larger one.

CYRTANDRA PARVA sp. nov. § *Dissimiles*.

Planta parva, suffruticôsa, caulis prostratis, radicanibus, 1.5 mm diametro, ramis brevibus, erectis; foliis oppositis, petiolatis, inferioribus in paribus valde inaequalibus, superioribus subaequalibus, majoribus oblongo-obovatis ad oblongo-ellipticis, 5 ad 8 cm longis, apice plerumque acutis, basi cuneatis, margine serratis, subtus pallidis, ad costa et nervis et reticulis perspicue ciliatis, nervis utrinque 6 vel 7; foliis minoribus 1 ad 1.5 cm longis, 5 ad 8 mm latis; floribus paucis, depauperato-umbellatis, 2.5 cm longis, umbellis plerumque 3-floris, pedunculis pedicellis-que brevibus, hirsutis; bracteis lanceolatis, 6 ad 7 mm longis; calycis 1.5 cm longis, ciliato-hirsutis, lobis lanceolatis, caudato-acuminatis, tubo aequantibus, corolla extus leviter pilosa, 2.5 cm longa; ovario glabro.

A slender, prostrate, suffrutescent plant with short ascending branches, the stems copiously rooting, the older ones glabrous, about 1.5 mm in diameter, the younger parts and the leaves on the midrib, nerves and reticulations beneath conspicuously ciliate with slender, elongated, brown hairs. Leaves opposite, those of the lower pairs very dissimilar in shape and size, those of the uppermost pairs often subequal, all olivaceous, glabrous on the upper surface, paler beneath, membranaceous or chartaceous, the larger ones oblong-obovate to oblong-elliptic, 5 to 8 cm long, 2 to 3 cm wide, the apex usually acute, base usually cuneate, the margins rather sharply serrate, often conspicuously ciliate; lateral nerves 6 or 7 on each side of the midrib, prominent on the lower surface as are the primary reticulations; petioles about 2 cm long; smaller leaves of each pair, at least in the lower part of the stem, similar in shape and texture to the larger ones, 1 to 1.5 cm long, 5 to 8 mm wide. Inflorescences terminal or in the upper axils, their peduncles about 5 mm long, hirsute, each peduncle usually bearing 3 subumbellately arranged flowers,

the pedicels hirsute, about 4 mm long. Bracts lanceolate, acuminate, membranaceous, 6 to 7 mm long. Flowers about 2.5 cm long. Calyx 1.5 cm long, rather conspicuously ciliate-hirsute, the spreading hairs 1.5 to 2.5 mm long, the tube 7 to 8 mm long, the lobes narrowly lanceolate, slenderly caudate-acuminate, ciliate-hirsute, equaling the tube in length. Corolla tube about 1.8 cm long, narrow in the lower portion, gradually widened upward, somewhat pilose. Filaments glabrous, 3 to 4 mm long; anthers connate, 1.5 mm long. Disk 0 or very obscure. Ovary glabrous, lanceolate, the style appressed-hirsute, 6 to 7 mm long.

MINDANAO, Zamboanga District, Malangas, *Bur. Sci.* 36833 (type), 37248 Ramos & Edaña, November, 1919. Along streams in forests at low altitudes.

A species well characterized by its small size, the prostrate slender stems copiously rooting, the leafy branches short, erect, as well as by its rather conspicuous, brown, ciliate indumentum and its dissimilar leaves, those of the lower pairs very different in size, those of the uppermost pairs being equal or subequal.

CYRTANDRA SUBGLABRA sp. nov.

Frutex erectus, usque ad 1 m altus, simplex, floribus exceptis glaber, caulis 5 mm diametro; foliis oppositis, in paribus subaequalibus, membranaceis, oblongis ad oblongo-ovatis, longe petiolatis, 14 ad 28 cm longis, acuminatis, basi cuneatis, margine integris; inflorescentiis axillaribus, 2- vel 3-floris, sessilibus vel brevissime pedunculatis, bracteis binis foliaceis persistentibus 18 mm longis, ellipticis vel elliptico-ovatis instructis; floribus sessilibus, 4.5 ad 5 cm longis, calycis 12 mm longis, lobis oblongo-ovatis, 3 mm longis, glabris; corolla pilosa, tubo deorsum angustato; ovario glabro, stylis leviter pilosis.

An erect, unbranched shrub up to 1 m high, entirely glabrous except the conspicuously pilose corollas, the stems pale when dry, about 5 mm in diameter. Leaves opposite, those of each pair equal or subequal in size and shape, membranaceous, subolivaceous, oblong to oblong-ovate, 14 to 28 cm long, 5 to 8 cm wide, narrowed above to the rather conspicuously acuminate apex and below to the cuneate and often slightly inequilateral base, the margins entire; lateral nerves 7 to 9 on each side of the midrib, prominent on the lower surface, the reticulations rather lax, slender; petioles 3 to 8 cm long. Inflorescences axillary, solitary, 2- or 3-flowered, the peduncles 2 to 3 mm long, each peduncle supplied with two, persistent, subfoliaceous bracts, the bracts elliptic to elliptic-ovate, sessile, about 18 mm long, 21 mm wide, compli-

cate, somewhat acuminate, persistent and somewhat accrescent in fruit, attaining a length of 2.5 cm, longitudinally 7-nerved, somewhat reticulate. Flowers sessile, white, 4.5 to 5 cm long, calyx about 12 mm long, at first 2-lobed, ultimately equally 5-lobed, the lobes oblong-ovate, acute or acuminate, 3 mm long. Corolla tube conspicuously pilose externally with long, weak hairs, the lower 18 mm narrow, cylindric, then widened. Filaments 12 mm long, glabrous, the anthers 2 mm in length, connate. Staminodes filiform, glabrous, 5 to 6 mm long. Disk cylindric, glabrous, nearly 3 mm long, slightly crenulate. Ovary glabrous, the styles slightly pilose, the stigma oblique, 1 mm long, 3 mm wide. Fruit oblong, subcylindric, glabrous, 1.5 to 2 cm long.

MINDANAO, Zamboanga District, Malangas, *Bur. Sci.* 36937 (type), 36742 Ramos & Edaña, October and November, 1919. Along streams in damp forests at low altitudes.

A species strongly characterized by its unbranched habit; by its opposite, subequal, long-petioled, entire leaves; and especially by its peculiar inflorescences which are axillary, short-peduncled, supplied with two conspicuous, persistent bracts subtending the usually three sessile flowers. The species is entirely glabrous except the conspicuously pilose corollas. It does not appear to be closely allied to any previously described species of the genus and is aberrant in the various sections of the genus as defined by C. B. Clarke, although apparently coming nearest to the section *Coccineae*.

ACANTHACEAE

HYPOESTES R. Brown

HYPOESTES MINDORENSIS sp. nov.

Planta erecta, suffruticosa, ramosa, circiter 1 m alta, ramulis puberulis; foliis ovatis, membranaceis, 6 ad 9 cm longis, utrinque plus minusve puberulis, sursum angustatis, apice tenuiter acute acuminatis, basi late subtruncato-rotundatis, nervis utrinque circiter 8; inflorescentiis puberulis, floribus subdistiche dispositis, bracteis 15 mm longis, lanceolatis, caudato-acuminatis, sursum distincte ciliatis, deorsum (4 mm) connatis, bracteis interioribus circiter 10 mm longis, acuminatis; bracteolis 1 mm longis; calycis lobis membranaceis, 2 mm longis, lanceolatis; corollae tubo 7 mm longo, lobis 11 ad 13 mm longis, angustioribus 1 mm latis, latioribus oblongo-obovatis, 5 mm latis.

An erect, branched, suffrutescent or distinctly woody plant about 1 m high, the branches glabrous, the branchlets more or

less puberulent. Leaves ovate, membranaceous, 6 to 9 cm long, 3.5 to 5 cm wide, both surfaces more or less puberulent, at least along the midrib and lateral nerves, the upper surface dark olivaceous, the lower pale, gradually narrowed upward to the slenderly and sharply acuminate apex, the base broadly rounded, often truncate; lateral nerves about 8 on each side of the midrib, prominent on the lower surface, the reticulations distinct; petioles 1.5 to 3 cm long. Inflorescences axillary and subterminal, the lower ones often with peduncles up to 4 cm in length, the upper ones short-peduncled, the flowers distichously arranged on the branchlets, the peduncles, rachis, branches, and bracts puberulent. Flowers about 2 cm long, pale purplish, the connate bracts about 15 mm long, lanceolate, slenderly caudate-acuminate, distinctly ciliate in the upper one-half with spreading, weak, crisped hairs, united for the lower 4 to 5 mm, the inner two or three bracts lanceolate, acuminate, somewhat pubescent, 9 to 10 mm long, about 2 mm wide, narrowed at both ends, the bracteoles lanceolate, acuminate, 1 mm long. Calyx about 6 mm long, somewhat pubescent, the lobes 5, membranaceous, lanceolate, acuminate, 2 mm long. Corolla tube about 7 mm long, glabrous below, somewhat pubescent above, the narrower lobe 11 to 12 mm long, about 1 mm wide, the broader one 12 to 13 mm long, 5 mm wide, oblong-obovate, slightly narrowed below, the apical lobules 1.5 to 2 mm long, the middle one somewhat broader than the two lateral ones. Filaments slightly pubescent; anthers oblong, about 2.5 mm long.

MINDORO, Paluan, *Bur. Sci.* 39702 Ramos, April, 1921. In dry forests at low altitudes.

This species somewhat resembles *Hypoestes cinerea* C. B. Clarke, but differs totally in its caudate-acuminate leaves and involucre bracts. In its floral and inflorescence characters it is manifestly allied to *H. subcapitata* C. B. Clarke and *H. laxiflora* Nees, but differs radically from both of these in its vegetative characters.

HYPOESTES AXILLARIS sp. nov.

Suffruticosa, erecta, ramosa, usque ad 50 cm alta, leviter pubescentibus; foliis in paribus subaequalibus vel inaequalibus, ovatis ad oblongo-ovatis, majoribus 6 ad 12 cm longis, minoribus 3 ad 6 cm longis, acute acuminatis, basi acutis, membranaceis, olivaceis, nervis utrinque 6 vel 7; inflorescentiis axillaribus terminalibusque, involucri paucis, solitariis vel fasciculatis, sessilibus vel pedunculatis; bracteis 4, lanceolatis, acuminatis,

11 mm longis, cinereo-pubescentibus; floribus circiter 18 mm longis.

An erect, suffrutescent, branched plant, up to 50 cm high, more or less cinereous-pubescent. Leaves in equal or distinctly unequal pairs, ovate to oblong-ovate, acutely acuminate, base acute, membranaceous, olivaceous, the larger ones 6 to 12 cm long and 4 to 6 cm wide, the smaller ones 3 to 6 cm long and 2 to 3 cm wide, the upper surface rather minutely cinereous-pubescent with scattered hairs, the indumentum more conspicuous on the midrib, the lower surface somewhat pubescent, paler; lateral nerves 6 or 7 on each side of the midrib, slender, distinct; petioles cinereous-pubescent, 1 to 4 cm long. Flowers pink, chiefly axillary, the involucre few, solitary or fascicled, never more than 5 in a fascicle, sessile or shortly peduncled; bracts 4, lanceolate, slenderly acuminate, about 11 mm long, sparingly cinereous-pubescent, the outer two united for the lower 3 mm. Calyx 5 to 6 mm long, pubescent, membranaceous, the lobes lanceolate, acuminate, 2 mm in length. Corolla 1.8 cm long, sparingly hirsute externally in the upper two-thirds, the tube 9 mm long, glabrous below, the lower lip 9 mm long, 3-lobed, the lobes broadly ovate, rounded, 2 mm in length. Filaments 7 mm long, slightly ciliate; anthers 1.5 mm long.

MINDANAO, Zamboanga District, near Zamboanga, *Merrill 5473* (type), October, 1906, *For. Bur. 9231 Whitford & Hutchinson*, January, 1908, *Bur. Sci. 16384, 16503 Reillo*, October, 1912. In shaded ravines at low altitudes.

Among the Philippine species perhaps as close to *Hypoestes subcapitata* C. B. Clarke as any, but remote from it in its vegetative, inflorescence, and bract characters, the bracts being merely pubescent, not at all ciliate. A striking character of the present species is its chiefly axillary inflorescences, the involucre being fascicled, not arranged on an elongated rachis, and often solitary or in pairs, or never exceeding five in a single inflorescence.

HYPOESTES TENUIS sp. nov.

Herba parva, ramosa, circiter 20 cm alta, erecta vel deorsum decumbens, caulis vix 1 mm diametro; foliis in paribus aequalibus, ovatis ad oblongo-ovatis, membranaceis, 1 ad 3 cm longis, obtusis vel obtuse acuminatis, nervis utrinque 3 vel 4; inflorescentiis axillaribus terminalibusque, involucris paucis, plerumque spicatum dispositis, spicis usque ad 5 cm longis; bracteis 4, lanceolatis, acuminatis, 8 ad 9 mm longis, minute cinereo-pubescentibus; floribus 1.5 cm longis.

A slender, branched, erect herb, up to 20 cm high, the stems 1 mm or less in diameter, terete, often decumbent below, the branches, petioles, and inflorescences minutely cinereous-pubescent. Leaves in equal pairs, ovate to oblong-ovate, membranaceous, 1 to 3 cm long, 7 to 14 mm wide, obtuse or sometimes broadly and obtusely acuminate, the base acute, the upper surface olivaceous, sparingly pubescent with short, scattered hairs, the lower surface paler, minutely pubescent at least on the midrib and nerves; lateral nerves usually 3 or 4 on each side of the midrib, slender; petioles 2 to 6 mm long, minutely pubescent. Involucres for the most part spicately arranged, the spikes terminating the branchlets, a few solitary ones in the upper axils, the spikes up to 5 cm long, presenting at most 5 or 6 involucres. Bracts 4, lanceolate, acuminate, 8 to 9 mm long, minutely cinereous-pubescent, the outer two united for the lower 2 to 3 mm. Calyx 2 to 3 mm long, membranaceous, the lobes narrowly lanceolate, acuminate, somewhat ciliate, nearly as long as the tube. Corolla 1.5 cm long, sparingly hirsute in the upper part, the tube 7 mm long, glabrous; upper lip 8 mm long, 2 mm wide, narrowly oblong, 2-nerved, obtuse; lower lip as long as the upper one, 5 mm wide, somewhat narrowed below, 3-lobed, the lobes about 2 mm long, ovate, rounded. Filaments 5 mm long; anthers about 1 mm long.

LUZON, Cagayan Province, between Mision and San Vicente, *For. Bur.* 16693 *Bacani*, March, 1909, near the seashore.

A species strongly characterized by its small size, its slender stems, small leaves, and spicately arranged flowers.

HYPOESTES CONFERTIFLORA sp. nov.

Erecta, usque ad 60 cm alta, inflorescentiis perspicue ciliatis exceptis glabra; foliis in paribus subaequalibus, chartaceis, oblongis, 6 ad 17 cm longis, acuminatis, basi decurrentibus, nervis utrinque circiter 9; inflorescentiis terminalibus, subcapitatis, confertis, 2 cm diametro, multifloris; involucris numerosis, bracteis 4, lanceolatis, acuminatis, exterioribus 12 ad 13 mm longis, dense longeque albido-ciliatis, interioribus leviter ciliatis; calycis 8 mm longis, pubescentibus, lobis lineari-lanceolatis, tubo aequantibus.

An erect, somewhat branched, herbaceous or suffrutescent plant, up to 60 cm high, entirely glabrous except the very prominently ciliate inflorescences. Stems terete, smooth, straw-colored, about 4 mm in diameter, the internodes 6 to 16 cm long. Leaves in equal or subequal pairs, chartaceous, oblong, 6 to 17

cm long, 3 to 5 cm wide, pale brownish when dry, subequally narrowed to the somewhat acuminate apex and the decurrent base; lateral nerves about 9 on each side of the midrib, rather prominent on the lower surface, the reticulation obscure; petioles 1 to 2.5 cm long. Flowers crowded in a dense, subglobose, sessile or very shortly peduncled, terminal inflorescence about 2 cm in diameter. Involucral bracts 4 subtending each flower, the outer two lanceolate, acuminate, 12 to 13 mm long, very densely ciliate in the upper two-thirds with white, 2 mm long, spreading hairs, the lower third glabrous or only slightly pubescent, the inner two bracts similar to the outer ones but shorter and ciliate only on the median portion of the back. Calyx pubescent, 8 mm long, the lobes linear-lanceolate, acuminate, equaling the tube.

LUZON, Zambales Province, Santa Maria, *Bur. Sci.* 4756 Ramos, December, 1907. In open places at low altitudes.

A species very strongly characterized by its dense, subcapitate inflorescences, and more especially by its densely and very conspicuously ciliate involucral bracts. Its alliance is with *Hypoestes subcapitata* C. B. Clarke, from which it is readily distinguished by its larger, more numerously nerved leaves, its inflorescence and involucre characters, and by being glabrous throughout except for the inflorescences.

HEMIGRAPHIS Nees

HEMIGRAPHIS LANCEOLATA sp. nov.

Herba erecta, ramosa, 50 ad 70 cm alta, partibus junioribus perspicue hirsutis; foliis lanceolatis, chartaceis, in siccitate fragilis, 6 ad 14 cm longis, caudato-acuminatis, basi acutis, margine undulato-crenatis, glabris, nervis utrinque 4 ad 8; spicis terminalibus axillaribusque, usque ad 7 cm longis, bracteis foliaceis, numerosis, lanceolatis, 1.5 ad 2 cm longis, utrinque hirsutis, acuminatis, basi acutis; calycis segmentis lineari-lanceolatis, caudato-acuminatis, hirsutis, 10 mm longis; corolla alba, 1.6 cm longa, sursum pubescens, lobis 4 mm longis; filamentis longioribus villosis, brevioribus glabris; capsulis hirsutis, 6 ad 7 mm longis.

An erect, branched herb, 50 to 70 cm high, the younger parts rather conspicuously hirsute with stiff, white hairs, the stems and branches dark-colored when dry, glabrous or very slightly pubescent, usually sulcate. Leaves lanceolate, chartaceous, brittle when dry, 6 to 14 cm long, 1 to 3 cm wide, olivaceous,

narrowed upward to the slenderly caudate-acuminate apex and below to the acute base, the upper surface glabrous, smooth, with numerous irregularly arranged cystoliths, the lower surface uniformly dark purple when fresh, when dry nearly the same color as the upper surface, glabrous or when young sparingly hirsute, the margins irregularly undulate-crenate; lateral nerves 4 to 8 on each side of the midrib, distant, anastomosing; petioles 1 to 2 cm long. Spikes terminal and in the uppermost axils forming a somewhat leafy inflorescence, the individual inflorescences 7 cm long or less; bracts foliaceous, lanceolate, 1.5 to 2 cm long, about 5 mm wide, hirsute on both surfaces with scattered, stiff, spreading, white hairs, narrowed below to the acute base and above to the acuminate or acute apex, the internodes of the inflorescences up to 1 cm in length. Calyx segments linear-lanceolate, caudate-acuminate, about 10 mm long, 1 mm wide, hirsute. Corolla white, about 1.6 cm long, the tube slender, cylindric and glabrous in the lower 5 mm, then broadened and sparingly pubescent externally, the lobes elliptic, rounded, about 4 mm long, the tube somewhat villous inside in the upper part. Longer filaments 3 mm in length, villous, the shorter ones glabrous; anthers 1.2 mm long. Ovary villous in the upper half; style glabrous. Capsules oblong, hirsute, 6 to 7 mm long, about 1.8 mm wide.

NEGROS, Cadiz, *Bur. Sci.* 7330 *Celestino*, March, 1909. BALUT, *Merrill* 5413 (type), October, 1906. On open, steep slopes in semicultivated ground at low altitudes, ascending to 500 meters.

A species strongly characterized by its narrow, lanceolate, caudate-acuminate leaves which are green on the upper surface and uniformly dark purple on the lower surface when fresh, as well as by its numerous, foliaceous, lanceolate, hirsute bracts. The specimens were originally referred to *Hemigraphis hirsuta* T. Anders.

HEMIGRAPHIS PACHYPHYLLA sp. nov.

Herba erecta, ramosa, leviter hirsuta, usque ad 60 cm alta; foliis in paribus aequalibus vel subaequalibus, coriaceis, olivaceis, in siccitate fragilis, ellipticis ad oblongis, 6 ad 11 cm longis, basi acutis, apice acutis vel leviter acuminatis, supra glabris, subtus scaberulis, nervis utrinque 5 vel 6; inflorescentiis terminalibus, spicatis, spicis plerumque 3, pedunculatis, usque ad 5 cm longis; bracteis numerosis, foliaceis, oblongis ad lanceolatis, utrinque angustatis, 12 ad 14 mm longis, hirsutis; calycis lobis

hirsutis, lineari-lanceolatis, circiter 7 mm longis; corolla alba, 1.8 cm longa, extus leviter pubescens; filamentis longioribus perspicue villosis; capsulis 11 mm longis, oblongis, cinereo-pubescentibus.

An erect, branched, somewhat hirsute herb, up to 60 cm high, the older stems glabrous, terete or somewhat 4-angled, the younger branches sparingly hirsute with short, usually appressed hairs. Leaves in equal or subequal pairs, coriaceous, olivaceous, brittle when dry, elliptic to oblong, 6 to 11 cm long, 2 to 4 cm wide, subequally narrowed to the acute base and the acute or somewhat acuminate apex, the upper surface glabrous, smooth, and with numerous, irregularly arranged cystoliths, the lower surface scabrid and more or less pubescent on the midrib and nerves, the margins irregularly crenate; lateral nerves 5 or 6 on each side of the midrib, rather prominent, anastomosing, the primary reticulations lax; petioles more or less pubescent, 1 to 2 cm long. Inflorescences terminal, usually consisting of 3 peduncled spikes from the tip of each branch, the peduncles up to 1.5 cm long, the spikes up to 5 cm in length. Bracts coriaceous, oblong to lanceolate, narrowed upward to the obtuse apex and below to the acute base, 12 to 14 mm long, 4 to 5 mm wide, sparingly hirsute with stiff, short hairs on both surfaces. Calyx about 7 mm long, somewhat hirsute, the lobes linear-lanceolate, slender, acuminate, nearly free, the tips of the lobes supplied with 1 to 3 very slender hairs up to 2 mm in length. Corolla white, about 1.8 cm long, the tube glabrous in the lower, slender 6 mm, then gradually widened and sparingly pubescent, the lobes broadly ovate, 3 to 4 mm long. Longer filaments 2 mm in length, densely villous on one side, the shorter ones very sparingly villous; anthers 2 mm long. Ovary oblong, 2 to 5 mm long, densely pubescent; style somewhat villous. Capsules about 11 mm long, cinereous-pubescent, oblong, somewhat acuminate; seeds ovoid, 1.3 mm long, minutely pubescent.

LUZON, Camarines Province, Paracale, *Bur. Sci.* 33974 (type), 33647 Ramos & Edaño, December, 1918. In thickets and in recent clearings at low altitudes. *Bur. Sci.* 33477 Ramos & Edaño from the same locality differs in its relatively somewhat broader, longer-petioled leaves, but probably represents the same species.

A species in the general alliance with *Hemigraphis cumingiana* F.-Vill., from which it is distinguished among other characters by its much thicker leaves which are scabrid on the lower surface.

PERISTROPHE Nees

PERISTROPHE CORDATIBRACTEA sp. nov.

Herba annua, 30 ad 40 cm alta, ramosa, ramulis junioribus leviter pubescentibus; foliis lanceolatis, chartaceis, utrinque cystolithis numerosis instructis, 3 ad 7 cm longis, sursum angustatis, apice obtuse acuminatis, basi acutis ad subobtusis, nervis utrinque 4 vel 5; cymis paucifloris, bracteis inferioribus oblongis ad lanceolatis, 2 ad 3 mm longis, superioribus foliaceis, ovatis ad oblongo-ovatis, acutis, basi late rotundatis et distincte cordatis, 12 ad 15 mm longis, 6 ad 10 mm latis; floribus circiter 2.2 cm longis, sepalis anguste lanceolatis, 4 mm longis, corolla sursum leviter ciliata; capsulis 10 mm longis, leviter hirsutis, seminibus 8.

A slender annual herb 30 to 40 cm high, the lower portions of the stems often decumbent, the branches, leaves, and bracts with numerous cystoliths, the branches at most 1.5 mm in diameter, the very young branchlets sparingly appressed-pubescent. Leaves lanceolate, chartaceous, 3 to 7 cm long, 7 to 15 mm wide, dark olivaceous when dry, entire or very obscurely undulate, narrowed upward to the blunt-acuminate apex, the base acute to subobtusate; lateral nerves 4 or 5 on each side of the midrib, slender, obscure; petioles 3 to 10 mm long. Cymes terminal, few-flowered, the bracts subtending the pedicels narrow, oblong to lanceolate, at most 2 to 3 mm long, the two foliaceous bracts subtending the flowers ovate to oblong-ovate, acute, the base broadly rounded and distinctly cordate, 12 to 15 mm long, 6 to 10 mm wide, sessile, the bracteoles narrowly lanceolate, acuminate, 4 to 6 mm long. Sepals narrowly lanceolate, acuminate, slightly pubescent, 4 mm long. Corolla pale purplish, about 2.2 cm long, the tube slender, 12 mm long and slightly ciliate above, the broader lobes 9 to 10 mm long, 6 to 7 mm wide, obovate, the narrower one oblong, obtuse, about 4 mm wide. Anthers linear-oblong, 3.5 to 4 mm long, the upper cell slightly overlapping the upper portion of the lower one. Capsules about 10 mm long, sparingly hirsute, the basal narrowed portion 5 mm long, the seed-bearing part oblong, somewhat acuminate, about 2 mm in diameter. Seeds 8, about 2 mm in diameter.

MINDORO, Mount Calavite, *Bur. Sci.* 39392 Ramos, April, 1921. Along streams in primary forests at an altitude of about 700 meters.

A species well characterized by its narrow lanceolate leaves and its distinctly cordate floral bracts.

STROBILANTHES Blume

STROBILANTHES PACHYS C. B. Clarke in herb. Kew. sp. nov.

Suffruticosa, ramosa, inflorescentiis exceptis glabra; foliis in paribus inaequalibus, coriaceis, glabris, integris, oblongis ad oblongo-ovatis, acuminatis, basi decurrentibus, nervis utrinque 5 ad 8, majoribus 7 ad 13 cm longis, minoribus 3 ad 8 cm longis; spicis terminalibus, 3 ad 10 cm longis, circiter 1 cm diametro, densis, bracteis coriaceis, lanceolatis, 1.5 cm longis, leviter ferrugineo-pubescentibus; floribus circiter 3.5 cm longis, calycis lobis 5, liberis, anguste lanceolatis, 11 mm longis; corolla glabra; ovario oblongo, glabro, apice ferrugineo-pubescente; capsulis oblongis, 2 cm longis.

An erect, branched, suffrutescent plant, glabrous or nearly so except the inflorescences, the ultimate branches terete, brownish, about 3 mm in diameter, the very young branchlets nearly black, angled or sulcate, slightly pubescent. Leaves in unequal pairs, olivaceous, oblong to oblong-ovate, entire, both surfaces very densely covered with irregularly arranged cystoliths, glabrous, narrowed upward to the distinctly acuminate apex and below to the decurrent base, the larger ones of each pair 7 to 13 cm long, 3 to 4.5 cm wide, the smaller ones 3 to 8 cm long, 2 to 3.3 cm wide; lateral nerves of the larger leaves about 8 on each side of the midrib, of the smaller ones about 5, rather prominent, the reticulations obscure. Inflorescences terminal and terminating short lateral branches, spicate, 3 to 10 cm long, the bracts persistent, coriaceous, lanceolate, about 1.5 cm long, 4 to 5 mm wide, sparingly ferruginous-pubescent, nearly black when dry, narrowed upward to the bluntly acuminate apex. Calyx lobes free, narrowly lanceolate, subcoriaceous, 11 mm long, 2 mm wide, slightly pubescent. Corolla lavender, glabrous, 3.5 cm long, the tube narrow and cylindric in the lower 12 mm, then enlarged. Stamens 4. Ovary oblong, pubescent at the apex; style slender, sparingly villous. Capsules oblong, 2 cm long, about 3 mm in diameter, glabrous except at the very tips which are sparingly ferruginous-hirsute; seeds orbicular-ovate, about 3 mm long, appressed-pubescent with pale-brownish hairs.

LUZON, Nueva Vizcaya Province, near Imugan, *Bur. Sci.* 14378 *McGregor*, April, 1912. The specimen closely matches *Vidal 3012* in the Kew Herbarium bearing Clarke's unpublished manuscript name which I have adopted for the species; Vidal's specimen was from the Caraballo Sur Mountains and was probably collected on the trail between Caranglan and Dupax, hence, coming from the same general region as *McGregor's* specimen.

The species is very strongly characterized among the Philippine forms by its rather thickly coriaceous, entire, glabrous leaves and its elongated, spikelike inflorescences which are at most 1 cm in diameter, the persistent coriaceous, lanceolate bracts being sparingly ferruginous-pubescent.

HALLIERACANTHA Stapf

This genus, so far as known, is confined to Borneo and the Philippines, having twenty-one species in Borneo, three in Palawan, one in Mindanao and Basilan, and one in Mindoro and Luzon. My previous conception of *Polytrema* was largely based on *Polytrema aequifolium* C. B. Clarke of Palawan. Recently, in studying our Philippine and Bornean material, I concluded that this species could not be generically separated from *Hallieracantha*. A communication from Dr. O. Stapf, in answer to my queries, clears up the matter. He states that *Hallieracantha* was published in July, 1907, and *Polytrema* in November or December, 1907, and further that *Polytrema aequifolium* C. B. Clarke is a *Hallieracantha*, not a *Polytrema*, the latter genus being typified by *P. vulgare* C. B. Clarke. The Philippine forms formerly placed in *Polytrema* are here transferred to *Hallieracantha*.

HALLIERACANTHA AEQUIFOLIA (C. B. Clarke) comb. nov.

Polytrema aequifolium C. B. Clarke ex Merr. in Philip. Journ. Sci. 10 (1915) Bot. 345.

PALAWAN, *Bur. Sci.* 357 *Bermejós*.

HALLIERACANTHA ADDISONIENSIS (Elm.) comb. nov.

Hypoestes addisoniensis Elm. Leaf. Philip. Bot. 5 (1913) 1697.

Polytrema addisoniense Merr. in Philip. Journ. Sci. 10 (1915) Bot. 341.

PALAWAN, *Elmer* 12715, *Merrill* 7235.

HALLIERACANTHA ELMERI nom. nov.

Hypoestes pulgarensis Elm. Leaf. Philip. Bot. 5 (1913) 1698, non *Hallieracantha pulgarensis* Elm.

Polytrema pulgarens Merr. in Philip. Journ. Sci. 10 (1915) Bot. 342.

PALAWAN, *Elmer* 12785.

HALLIERACANTHA BREVIPETIOLATA sp. nov.

Herba erecta, ramosa, 30 ad 40 cm alta, partibus junioribus leviter pubescentibus; foliis in paribus subaequalibus, oblongis, membranaceis, utrinque cystolithis numerosis instructis, 5 ad 9 cm longis, breviter petiolatis, obtusis ad subacutis, basi plerumque obtusis, nervis utrinque circiter 6, perspicuis; petiolo 2 ad 6 mm longo; cymis breviter pedunculatis, paucifloris,

bracteis ovato-lanceolatis, 2 ad 2.5 mm longis, calycis segmentis anguste lanceolatis, acuminatis, 6 ad 7 mm longis; corolla alba, 12 mm longa, extus leviter pubescens, tubo sursum ampliato; capsulis oblanceolatis, 1.5 cm longis.

An erect branched herb 30 to 40 cm high, the younger parts sparingly pubescent, the branches terete, glabrous or nearly so, usually dark greenish when dry, the branchlets distinctly pubescent, often compressed or obscurely angular. Leaves of each pair equal or but slightly unequal, oblong, membranaceous, olivaceous, shining, 5 to 9 cm long, 2 to 3.5 cm wide, with numerous cystoliths, glabrous on both surfaces, the margins entire or very obscurely undulate, the apex obtuse to subacute, base usually obtuse, sometimes acute; lateral nerves about 6 on each side of the midrib, prominent; petioles 2 to 6 mm long, somewhat pubescent. Cymes axillary, short-peduncled, rather few-flowered, the peduncles sparingly pubescent, up to 8 mm long. Bracts ovate-lanceolate, acuminate, 2 to 2.5 mm long, the pedicels 1 to 2 mm long. Calyx segments 5, narrowly lanceolate, acuminate, somewhat pubescent, 6 to 7 mm long. Corolla white, about 12 mm long, the lower 4 mm of the tube cylindric, about 1 mm in diameter, then somewhat inflated and slightly pubescent, the whole tube about 9 mm long; the larger lobe 4.5 mm long, about 3 mm wide, cleft, the lobules oblong-ovate, 2 mm long, the smaller lobe 3-lobulate, the lobules oblong to oblong-elliptic, obtuse, 3 mm long, the middle one slightly broader than the two lateral ones. Filaments glabrous; anthers about 1.5 mm long, one cell attached slightly above the other. Capsules oblanceolate, glabrous or slightly pubescent, about 1.5 cm long, 2.5 mm in diameter, the sterile basal part 6 to 7 mm long.

MINDORO, Paluan, *Bur. Sci.* 39761 Ramos, April, 1921. In dry forests at low altitudes. A single specimen collected on Mount Maquiling, Laguna Province, Luzon, by forestry students in November, 1913, represents the same species.

A species apparently most closely allied to *Hallieracantha aequifolia* (C. B. Clarke) Merr., differing in numerous characters and readily distinguished by its much shorter petioles.

RUBIACEAE

TARENNA Gaertner

TARENNA PANGASINENSIS sp. nov.

Arbor parva circiter 4 m alta, plus minusve cinereo-pubescentibus; foliis subcoriaceis, oblongis, 7 ad 10 cm longis, supra

olivaceis, glabris, nitidis, subtus pallidis et subdense cinereo-pubescentibus, indumento nitido, apice acutis ad obscure obtuseque acuminatis, basi acutis, nervis utrinque circiter 10, subtus distinctis, junioribus plerumque in axillis glandulosis barbatisque; cymis 3 ad 4 cm longis, usque ad 4 cm diametro, cinereo-pubescentibus; floribus numerosis, subconfertis, corollae tubo 4 mm longo, glabro, fauce villosa, lobis 5, oblongo-ellipticis, 5 mm longis, calycis cinereo-pubescentibus.

A small tree about 4 m high, the branches glabrous, reddish brown to grayish, terete, the branches minutely pubescent. Leaves subcoriaceous, oblong, 7 to 10 cm long, 2 to 3.5 cm wide, subequally narrowed to the acute or very slightly acuminate apex and to the acute base, the upper surface glabrous, olivaceous, shining, the lower surface pale and uniformly cinereous-pubescent with short, appressed, shining hairs, the younger leaves usually conspicuously glandular and barbate in the axils of the veins; lateral nerves about 10 on each side of the midrib, rather slender, distinct, the reticulations lax, obscure; petioles 8 to 10 mm long, pubescent or ultimately glabrous; stipules more or less pubescent, sheathing, about 8 mm long. Inflorescences terminal, shortly peduncled, 3 to 4 cm long and 2.5 to 4 cm wide, cinereous-pubescent. Flowers white, numerous, fragrant, crowded, 5-merous, their pedicels about 2 mm long, the bracts and bracteoles minute, ovate, acuminate, 0.5 mm long. Calyx cinereous-pubescent, cup-shaped, about 2 mm long, the lobes orbicular-ovate, rounded, 0.5 mm long, their margins somewhat ciliate. Corolla tube 4 mm long, glabrous outside, the throat villous inside, the lobes oblong-elliptic, rounded, 5 mm long, spreading or reflexed. Stamens exserted, the anthers linear-oblong, 4 mm long. Style and stigma about 12 mm long, narrowly club-shaped. Ovules few.

LUZON, Pangasinan Province, Aguilar, *For. Bur.* 28419 *Zamuco*, April 21, 1921. Near streams at low altitudes.

This species has much the facies of *Tarenna asiatica* O. Kuntze, from which, however, it differs in numerous details and more especially in the indumentum on the lower surface of the leaves. It does not appear to be closely allied to any previously described Philippine form.

COWIEA Wernham

COWIEA PHILIPPINENSIS sp. nov.

Frutex erectus, 1 ad 3 m altus, inflorescentiis leviter ferrugineo-hirsutis exceptis glaber; foliis chartaceis ad subcoriaceis,

oblongo-ellipticis, 12 ad 18 cm longis, utrinque subaequaliter angustatis, breviter acuminatis, basi acutis ad subrotundatis, nervis utrinque 10 ad 12, perspicuis; stipulis 1 cm longis, in $\frac{1}{2}$ inferiore parte connatis, vaginatis; spicis plerumque extra-axillaribus, tenuibus, 11 ad 20 cm longis; floribus fasciculatis, fasciculis paucifloris, bracteis ovatis, acuminatis, 3 mm longis cum bracteolis lanceolatis calycibusque plus minusve ferrugineo-hirsutis, calycis profunde 5-lobatis, lobis 1.5 mm longis; corollae tubo 2 mm longo, intus haud barbato.

An erect shrub 1 to 3 m high, glabrous except the somewhat ferruginous-hirsute inflorescences. Branches terete, rather smooth, the ultimate branchlets more or less sulcate, about 2 mm in diameter. Leaves firmly chartaceous or subcoriaceous, oblong-elliptic, 12 to 18 cm long, 5 to 7 cm wide, subequally narrowed to the acute or somewhat rounded base and to the shortly acuminate apex, the upper surface olivaceous, rather dull, the lower surface paler; lateral nerves 10 to 12 on each side of the midrib, slightly raised on the upper surface, rather prominent on the lower surface, obscurely arched-anastomosing, the reticulations lax; petioles 3 to 5 mm long; stipules about 1 cm long, sheathing, united for about one-half their length, the free portions ovate, acuminate. Inflorescences chiefly extra-axillary, solitary, on the ultimate branches, usually inserted about 1 cm above the nodes, slender, 11 to 20 cm long, more or less ferruginous-hirsute, spikelike, the flowers fascicled at the nodes, sessile, the bracts subtending the fascicles ovate, acuminate, somewhat ferruginous-hirsute, about 3 mm long, the bracteoles lanceolate, acuminate, about 2 mm long. Flowers small, 5-merous, sessile or subsessile, few in a fascicle, the calyx about 2 mm long, somewhat pubescent, deeply cleft, the lobes lanceolate, about 1.5 mm long, ferruginous-hirsute. Corolla glabrous on both surfaces, the tube 2 mm long, the lobes oblong-ovate, obtuse, somewhat twisted-imbricate, 1 mm long. Anthers linear-lanceolate, 2.5 mm long, the connectives produced about 0.3 mm. Style narrowly club-shaped, grooved, glabrous, 2 mm long.

MINDANAO, Zamboanga District, Malangas and Mount Tubuan, *Bur. Sci.* 36819, 36683 Ramos & Edaña, October and November, 1919. In damp forests along streams at low altitudes.

The genus *Cowiea*, previously a monotypic one, was described from material collected by Miss Gibbs in British North Borneo,

and the Bornean species is represented in our collections by several recently collected specimens. The present species differs from *Cowiea borneensis* Wernh. in its deeply cleft calyces; its ferruginous indumentum; its corolla being glabrous, not bearded inside; and in its stipules being united into a distinct tube in the lower one-half. It is furthermore an erect shrub. In this connection, *Cowiea borneensis* Wernh. is described as scandent, but the labels on all of our recently collected Bornean material indicate an erect shrub.

IXORA Linnaeus

IXORA MYRIANTHA sp. nov.

Frutex vel arbor parva, usque ad 8 m alta, glaberrima; foliis membranaceis ad chartaceis, 9 ad 17 cm longis, oblongis ad oblongo-ellipticis, acuminatis, basi plerumque acutis, nervis utrinque circiter 10, subtus perspicuis, foliis superioribus plerumque brevissime petiolatis, basi late rotundatis; inflorescentiis pedunculatis, multifloris, 4 ad 8 cm latis, floribus albidis, confertis, bracteis bracteolisque lanceolatis, 1 mm longis; calycis 1.2 mm longis, lobis acutis, brevibus; corollae tubo 12 mm longo, lobis late lanceolatis ad oblongo-lanceolatis, acuminatis, 5 mm longis.

An entirely glabrous shrub or small tree reaching a height of 8 m, the branches and branchlets rather slender, usually brownish, terete. Leaves membranaceous to chartaceous, oblong to oblong-elliptic, 9 to 17 cm long, 3.5 to 6 cm wide, usually brownish when dry, somewhat shining, narrowed upward to the blunt-acuminate apex and below to the acute base; lateral nerves about 10 on each side of the midrib, rather distant, arched-anastomosing, prominent on the lower surface, the reticulations lax, distinct; petioles 10 to 12 mm long; stipules lanceolate-acuminate from an ovate base, 5 to 6 mm long. The upper pair of leaves subtending the inflorescences are in general similar to the normal leaves but are subsessile or shortly petioled and with broadly rounded bases. Inflorescences terminal, peduncled, many-flowered, 4 to 8 cm wide, the peduncles 4 to 5 cm in length, the bracts subtending the branches narrowly lanceolate, acuminate, 4 to 7 mm long. Flowers rather crowded, white, their pedicels about 2 mm long, the bracts and bracteoles lanceolate, acuminate, 1 mm in length. Calyx glabrous, cup-shaped, 1.2 mm long, 4-toothed, the teeth triangular, acute or acuminate, about one-third as long as the tube. Corolla

white, the tube 12 mm long, rather slender, nearly black when dry, the lobes lanceolate to oblong-lanceolate, acuminate, 5 mm long, 2 mm wide. Anthers linear-lanceolate, up to 3.5 mm in length.

SAMAR, Merrill *Phil. Pl.* 1700 (type), April, 1914, *Bur. Sci.* 24122, 24139 Ramos & Edaña, February, 1916. In damp forests at low altitudes.

A species apparently most closely allied to *Ixora cumingiana* Vid., differing especially in its crowded shorter flowers.

PLEIOCARPIDIA K. Schumann

PLEIOCARPIDIA LANAENSIS sp. nov.

Arbor parva, usque ad 12 m alta, partibus junioribus et subtus foliis ad costa nervisque plus minusve pubescentibus; foliis oblongis, coriaceis, 15 ad 30 cm longis, 5 ad 11 cm latis, acuminatis, basi acutis ad late rotundatis, nervis utrinque 15 ad 18, subtus valde perspicuis; inflorescentiis paniculatis, 4 ad 8 cm longis, pedunculatis, floribus polygamis, plerumque 7-meris, ♂ calycis 3 mm diametro, cinereo-pubescentibus, corollae tubo 2 mm longo, lobis lanceolatis, 3 mm longis, intus villosis; disco puberulo; fructibus globosis, 6 ad 7 mm diametro, subglabris.

A small tree attaining 12 m in height, the younger parts, inflorescences and the leaves on the midrib and nerves beneath more or less pubescent. Branches terete, rather stout, smooth, glabrous, brownish or grayish, the ultimate branchlets 2.5 to 4 mm in diameter, often compressed or sulcate. Leaves oblong, coriaceous, 15 to 30 cm long, 5 to 11 cm wide, usually pale when dry, the upper surface glabrous, the apex shortly acuminate, base acute to rounded; lateral nerves 15 to 18 on each side of the midrib, somewhat curved, very prominent on the lower surface, the reticulations distinct; petioles 1.5 to 2 cm long, more or less pubescent; stipules oblong or ovate, 6 to 8 mm long, obtuse or acute. Inflorescences axillary, peduncled, cymose, more or less pubescent, 4 to 8 cm long, 3 to 6 cm wide, somewhat pyramidal, many-flowered, the peduncles usually about 1 cm long. Flowers apparently polygamous, usually 7-merous, the calyx of the staminate ones about 3 mm in diameter, shallowly cup-shaped, truncate or obscurely toothed. Corolla about 5 mm long, the tube 2 mm in length, the lobes usually 7, lanceolate, 3 mm long, densely villous at the throat inside. Filaments 3 mm long, the anthers 1 mm in length. Disk prominent, cushion-shaped, puberulent, not lobed, about 1.5 mm in diameter. Calyces of the perfect flowers somewhat urceolate; style about

1.3 mm long, the stigma 1 mm in diameter. Fruits globose, 6 to 7 mm in diameter, nearly glabrous, crowned by the shallow calyx limb and the prominent, puberulent disk.

MINDANAO, Lanao District, *Mrs. Clemens 882* (type), January, 1907; Zamboanga District, *Merrill 8064, 8098*, December, 1911, *Bur. Sci. 37226 Ramos & Edaño*, November, 1918; Bukidnon Subprovince, *38988 Ramos & Edaño*, June, 1920. In forests and along streams at low and medium altitudes, ascending to 800 meters.

This species is manifestly allied to *Pleiocarpidia enneandra* (Wight) K. Schum. of the Malay Peninsula, Sumatra, and Borneo, differing among other characters in its leaves being more or less pubescent beneath, and in its usually 7-merous flowers. It is somewhat intermediate between *Pleiocarpidia* and *Urophyllum*, the two genera being very closely allied; perhaps *Pleiocarpidia* should be merged in *Urophyllum*. The specimens cited above were all distributed as *Urophyllum*. *Aulacodiscus* Hook. f. non Ehrenb. must be replaced by *Pleiocarpidia* if this group is to be retained as generically distinct from *Urophyllum*.

GARDENIA Linnaeus

GARDENIA MEGALOCARPA sp. nov.

Arbor parva, ramulis et subtus foliis molliter pubescentibus; foliis chartaceis vel submembranaceis, obovatis ad oblongo-obovatis, 15 ad 22 cm longis, acuminatis, basi cuneatis, supra olivaceis, nitidis, glabris, nervis utrinque 18 ad 22, perspicuis; fructibus ellipsoideis, magnis, glabris, leviter 5-carinatis, circiter 7 cm longis, calycis lobis persistentibus, pubescentibus, profunde carinatis, carinis productis, anguste oblongis, falcatis, 1.5 cm longis, 4 mm latis. Species *G. carinatae* Wall. affinis.

A small tree, the branchlets and the lower surface of the leaves softly pubescent, the ultimate branchlets 4 to 5 mm in diameter, grayish. Leaves chartaceous or subcoriaceous, obovate to oblong-obovate, 15 to 22 cm long, 6 to 10 cm wide, the apex distinctly acuminate, the base cuneate, the upper surface glabrous, olivaceous, shining, the lower surface somewhat paler, the indumentum largely confined to the midrib, nerves, and reticulations; lateral nerves 18 to 22 on each side of the midrib, prominent on the lower surface, spreading or somewhat ascending, the primary reticulations subparallel, slender; petioles pubescent, 1 to 1.3 cm long; stipules 1 to 1.5 cm long, somewhat sheathing, pubescent. Fruits solitary, in the uppermost axils, shortly peduncled, ellipsoid, glabrous, orange-red when

fresh, brownish when dry, about 7 cm long, 4.5 cm in diameter, longitudinally 5-ridged, the ridges conspicuous near the apex of the fruit, obscure or nearly obsolete in the lower part of the fruit, the persistent calyx lobes pubescent, deeply carinate, the keels produced, narrowly oblong, falcate, 1.5 cm long, 4 mm wide, obtuse.

MINDORO, Paluan, *Bur. Sci.* 38919 Ramos, April 22, 1921. In forests at low altitudes.

A species manifestly allied to *Gardenia carinata* Wall., but readily distinguished by its much larger fruits.

UROPHYLLUM Wallich

UROPHYLLUM MINDORENSE sp. nov.

Frutex subglaber, partibus junioribus inflorescentiisque parvis pubescentibus; foliis oblongis ad oblongo-ellipticis, 7 ad 11 cm longis, membranaceis, olivaceis, utrinque glabris, acuminatis, basi late acutis, nervis utrinque 8 ad 10, perspicuis, stipulis anguste lanceolatis, deciduis, 3 mm longis; floribus fasciculatis, pedicellatis, bracteis lineari-lanceolatis, 2 ad 3 mm longis; calycis cupulatis, 4 mm longis, 4-lobatis; corolla 8 mm longa, 5-lobata, extus glabra, intus barbata, lobis oblongo-ovatis, acutis, 3.5 ad 4 mm longis.

A nearly glabrous shrub, the very young parts and the inflorescences obscurely pubescent, the branches slender, pale or greenish, glabrous. Leaves oblong to oblong-elliptic, membranaceous, 7 to 11 cm long, 3 to 5 cm wide, olivaceous, shining, entirely glabrous on both surfaces, the very young ones slightly pubescent, apex rather slenderly acuminate, the base broadly acute; lateral nerves 8 to 10 on each side of the midrib, spreading, rather prominent on the lower surface, anastomosing, the primary reticulations rather lax, distinct; petioles glabrous, 1 to 1.8 cm long; stipules narrowly lanceolate, acuminate, about 3 mm long. Flowers white, in axillary fascicles, pediceled, the pedicels very slightly pubescent, 2 to 5 mm long, the subtending bracts linear-lanceolate, acuminate, 2 to 3 mm long. Calyx cup-shaped, about 4 mm long, 4-lobed, the lobes about 2 mm wide, 1 mm long, shortly acuminate. Corolla 8 mm long, glabrous outside, the tube 4 to 4.5 mm long, somewhat expanded above the calyx rim, the throat densely villous inside, the lobes 5, oblong-ovate, acute, 3.5 to 4 mm long, bearded at the base inside. Anthers 1.5 mm long including the rather conspicuous produced connective.

MINDORO, Mount Calavite, *Bur. Sci.* 39279 (type), 39398 Ramos, April, 1921. On forested slopes, altitude 600 to 700 meters.

A species belonging in the group with *Urophyllum acuminatum* Merr., but with broader, more numerous nerved, differently shaped, not caudate-acuminate leaves, and nearly glabrous throughout.

ARGOSTEMMA Wallich

ARGOSTEMMA ARACHNOSUM sp. nov.

Herba simplex, suberecta, usque ad 20 cm alta, subtus foliis ad costa nervisque dense arachnoso-villosis; foliis numerosis, oblongis ad oblongo-ellipticis, 4.5 ad 8 cm longis, in paribus subaequalibus, obtusis ad brevissime acuminatis, nervis utrinque circiter 8, subtus perspicuis; inflorescentiis longe pedunculatis, cymosis, 1.5 ad 3 cm longis, arachnoso-villosis, pedunculo usque ad 9 cm longo, glabro; floribus 5-meris, pedicellis villosis, 10 ad 12 mm longis.

A simple, suberect herb, up to 20 cm high, the stems usually decumbent below, about 3 mm in diameter, the younger parts more or less villous or hirsute. Leaves numerous, in scattered pairs, those of each pair equal or subequal, oblong to oblong-elliptic, obtuse or very shortly acuminate, membranaceous or chartaceous, 4.5 to 8 cm long, 1.8 to 2.5 cm wide, the base acute to rounded, the upper surface usually black when dry, sparingly villous along the midrib or entirely glabrous, the lower surface very conspicuously and densely villous with dirty-brown, crisped, cobwebby hairs on the midrib, nerves, and reticulations; lateral nerves about 8 on each side of the midrib, prominent on the lower surface; petioles 1 to 2 cm long, villous; stipules oblong, about 8 mm long, 4 mm wide, acuminate. Inflorescences terminal, cymose, the cymes rather densely flowered and umbelliform, villous, 1.5 to 3 cm long; peduncles elongated, glabrous, 5 to 9 cm long, often with a whorl of membranaceous, oblong-ovate, 4 to 5 mm long bracts at about the middle, the bracts subtending the branches oblong to oblong-lanceolate, 2.5 to 5 mm long, the bracteoles broadly ovate, obtuse, 2 mm long. Flowers 5-merous, their pedicels villous, 10 to 12 mm long. Calyx about 2.2 mm in diameter, densely villous, the lobes broadly ovate, spreading, glabrous inside, 1 mm long. Fruit about 4 mm long and wide, somewhat cup-shaped, the calyx limb well produced above the fruit.

MINDANAO, Zamboanga District, Malangas, *Bur. Sci.* 36830 (type), 37331 *Ramos & Edaño*, October and November, 1919. Along small streams at low altitudes.

A species strongly characterized by its midribs, nerves, and reticulations on the lower surface of the leaves being densely cobwebby-villous and, hence, very conspicuous, as well as by its long-peduncled inflorescences. It belongs in the general group with *Argostemma urticifolium* King and *A. teysmannianum* Miq.

LASIANTHUS Jack

LASIANTHUS MINDANAENSIS sp. nov.

Frutex 2 m altus, ramis ramulisque subdense adpresse hirsutis; foliis chartaceis vel subcoriaceis, lanceolatis, caudato-acuminatis, 11 ad 18 cm longis, 2.5 ad 4 cm latis, basi acutis, supra olivaceis, glabris, subtus ad costa et nervis reticulisque adpresse-villosis, nervis utrinque 7, curvato-ascendentibus, perspicuis; floribus axillaribus, paucis, sessilibus, 5-meris, bracteis bracteolis lanceolatis, acuminatis, villosis, bracteis 8 mm longis, persistentibus; calycis tubo glabro, lobis 2 mm longis, villosis; fructibus subovoideis, 5 mm longis.

A shrub about 2 m high, the branches and branchlets terete, rather densely appressed-hirsute with brown hairs, the ultimate branchlets about 2 mm in diameter. Leaves chartaceous to subcoriaceous, lanceolate, 11 to 18 cm long, 2.5 to 4 cm wide, the apex slenderly caudate-acuminate, the base acute, the upper surface olivaceous, glabrous, shining, the lower surface appressed-villous on the midrib, nerves, and reticulations, the indumentum on the midrib brownish, on the nerves and reticulations yellowish green; lateral nerves 7 on each side of the midrib, curved-ascending, prominent, the reticulations rather distinct on the lower surface; petioles 10 to 12 mm long, densely appressed-villous with brown hairs; stipules ovate, acuminate, 3 to 4 mm long, persistent, densely appressed-villous outside. Flowers few, in axillary sessile fascicles, the subtending bracts narrowly lanceolate, acuminate, appressed-villous, persistent, about 8 mm long, the bracteoles similar but only half as long. Fruits subovoid, glabrous, 5 mm long, crowned by the villous persistent calyx teeth.

MINDANAO, Bukidnon Subprovince, Mount Candoon, *Bur. Sci.* 38795 *Ramos & Edaño*, June, 1920. In damp forests, altitude about 1,000 meters.

A species somewhat resembling *Lasianthus morus* Elm., but differing distinctly in its indumentum and in its calyx lobes. It differs from *Lasianthus acuminatissimus* Merr. in its indumentum, wider leaves, very different stipules, and conspicuous, persistent bracts and bracteoles.

LASIANTHUS ACUMINATISSIMUS sp. nov.

Frutex circiter 1 m altus, ramis ramulisque minute et obscure adpresse hirsutis; foliis chartaceis, anguste lanceolatis, 9 ad 20 cm longis, 1.5 ad 3 cm latis, sursum sensim angustatis, tenuiter caudato-acuminatis, basi acutis, supra olivaceis, glabris, subtus ad costa et nervis reticulisque breviter pubescentibus, nervis utrinque circiter 7, curvato-adscendentibus, perspicuis; floribus paucis, fasciculatis, sessilibus, 5-meris, ebracteolatis, calycis breviter 5-dentatis, corollae tubo cylindrico, 5 mm longo, intus villosus, lobis oblongis, 3 mm longis, intus villosis.

An erect shrub about 1 m high, the branches and branchlets terete, brownish or olivaceous when dry, minutely and obscurely appressed-hirsute with short hairs, the ultimate branchlets 1.5 to 2 mm in diameter. Leaves chartaceous, narrowly lanceolate, 9 to 20 cm long, 1.5 to 3 cm wide, gradually narrowed upward to the slenderly caudate-acuminate apex, the base acute, the upper surface olivaceous, glabrous, somewhat shining, the lower surface shortly pubescent on the midrib, nerves, and reticulations, the indumentum yellowish green; lateral nerves about 7 on each side of the midrib, curved-ascending, distinct on both surfaces as are the reticulations; petioles more or less pubescent, 5 to 7 mm long; stipules linear to linear-lanceolate, pubescent, nearly as long as the petioles, deciduous. Flowers few, white, in axillary sessile fascicles, 5-merous. Calyx 3 mm long, slightly pubescent, the teeth triangular, acute, 0.5 mm long, their margins slightly ciliate. Corolla tube cylindric, somewhat pubescent externally, about 5 mm long, glabrous inside in the lower half, villous in the upper half, the lobes oblong, 3 mm long, villous inside. Anthers oblong, 2.2 mm long. Disk cushion-shaped, 1 mm long, glabrous. Style 6 mm in length.

LUZON, Bontoc Subprovince, Mount Caua, *Bur. Sci.* 38058 Ramos & Edaño, March, 1920. In the mossy forest, altitude about 1,800 meters.

A species belonging in the general group with *Lasianthus morus* Elm., well characterized, however, by its elongated, narrowly lanceolate, caudate-acuminate leaves.

HEDYOTIS Linnaeus

HEDYOTIS CAMARINENSIS sp. nov.

Suffruticosa, subscandens, stipulis inflorescentiisque plus minusve hirsutis exceptis glabra; caulis teretibus, laevis, 4 mm diametro, ramulis plus minusve compressis vel sulcatis; foliis chartaceis ad subcoriaceis, lanceolatis, usque ad 10 cm longis et 3 cm latis, breviter petiolatis, acutis vel obscure acuminatis, basi acutis, nervis utrinque 5, adscendentibus, perspicuis, reticulis obsoletis; stipulis latis, pectinatis, laciniae circiter 7, hirsutae, longioribus 6 ad 9 mm longae; inflorescentiis axillari-bus, cymis laxis, 1 cm longis, paucifloris, leviter hirsutis,* calycis lobis oblongo-lanceolatis, acuminatis, 1.5 ad 2 mm longis.

A suffrutescent, scandent plant at least 1 m high, glabrous except the stipules and inflorescences. Stems terete, smooth, dark-colored, about 4 mm in diameter, the younger branchlets usually compressed or sulcate. Leaves chartaceous to subcoriaceous, lanceolate, 7 to 10 cm long, 2 to 3 cm wide, greenish olivaceous, smooth, glabrous, slightly shining, the lower surface paler than the upper, the apex acute or slightly acuminate, the base acute; lateral nerves 5 on each side of the midrib, ascending, scarcely anastomosing, prominent, the reticulations obsolete; petioles stout, 3 to 4 mm long; stipules broad, the body about 3 mm long, 6 to 9 mm wide, glabrous, subtruncate, pectinate, the lobes about 7, linear, stiff, more or less hirsute, the inner ones 6 to 9 mm long, the outer ones gradually shorter, a few intermediate ones often present, 1 mm or less in length. Cymes axillary, lax, few-flowered, about 1 cm long, sparingly hirsute, the pedicels 2 to 3 mm long, slender. Calyx tube about 1 mm long, glabrous or nearly so, the lobes 4, oblong-lanceolate, somewhat acuminate, slightly hirsute, 1.5 to 2 mm long. Capsules globose, 1.5 mm in diameter, crowned by the persistent calyx lobes.

LUZON, Camarines Province, Paracale, *Bur. Sci.* 33604 Ramos & Edaño, December, 1918. In damp soil in new clearings near thickets at low altitudes.

The specimens were originally identified as *Hedyotis rigida* Miq., but represent a species rather remote from the one described by Miquel. It is strongly characterized by its short petioles, glabrous, lanceolate, acute, prominently and obliquely nerved leaves, the reticulations being obsolete, as well as by its stipule and inflorescence characters.

HEDYOTIS BAMBUSETORUM sp. nov.

Suffruticosa, ramosa, usque ad 1 m alta, inflorescentiis leviter hirsutis exceptis glabra, caulis teretibus, laevis, 4 mm diametro, ramulis teretibus vel leviter compressis vel sulcatis; foliis oblongo-ovatis ad ovato-lanceolatis, usque ad 17 cm longis, chartaceis, in siccitate olivaceis, nitidis, fragilis, tenuiter acute acuminatis, basi acutis ad subrotundatis, nervis utrinque 6 vel 7, curvato-adscendentibus, utrinque elevatis; stipulis latis, pectinatis, laciniae circiter 13, 7 ad 8 mm longae, glabrae, glanduliferae; inflorescentiis axillaribus, sessilibus, globosis, 1 ad 1.5 cm diametro; floribus numerosis, confertis, 5 mm longis, calycis lobis 4, lanceolatis, obscure hirsutis, 2 mm longis.

A suffrutescent, erect, branched plant up to 1 m high, glabrous except the very slightly hirsute inflorescences, the stems smooth, terete, subolivaceous, 4 mm in diameter, the branchlets terete or slightly compressed or sulcate. Leaves oblong-ovate to ovate-lanceolate, chartaceous, 9 to 17 cm long, 3 to 5 cm wide, when dry olivaceous, shining, fragile, smooth, the apex slenderly and acutely acuminate, the base acute to somewhat rounded or even decurrent; lateral nerves 6 or 7 on each side of the midrib, curved-ascending, projecting on both surfaces, slender but distinct, obscurely anastomosing, the reticulations lax, not prominent; petioles of the larger leaves 1 to 1.5 cm long; stipules broadly triangular, glabrous, about 8 mm wide, the body about 5 mm long, pectinate, the segments about 13, linear, the median ones longer, 7 to 8 mm long, the outer ones shorter, 3 to 4 mm long, all gland-tipped. Inflorescences axillary, globose, sessile, dense, 1 to 1.5 cm in diameter. Flowers white, numerous, crowded, the bracteoles lanceolate, acuminate, 4 to 6 mm long, slightly hirsute, the pedicels 1 mm long or less. Flowers about 5 mm long, 4-merous. Calyx tube glabrous, 1.5 mm long, the lobes lanceolate, about 2 mm long, glabrous or slightly hirsute. Corolla tube slender, glabrous, 3 mm long, the throat and lobes slightly bearded inside, the lobes oblong-lanceolate, 1.5 mm long. Style glabrous, 5 mm long.

PALAWAN, Taytay, Merrill 9214, April, 1913. Along trails in bamboo thickets at low altitudes.

A species apparently most closely allied to the Bornean *Hedyotis platyphylla* Merr., but differing in its branches, its terete stems, more numerous segments of its stipules, shorter petioles, and in its nerves not being impressed on the upper surface.

OPHIORRHIZA Linnaeus

OPHIORRHIZA DOLICHOPHYLLA sp. nov.

Planta suffruticosa, erecta, simplex, usque ad 50 cm alta, inflorescentiis leviter pubescentibus exceptis glabra; foliis membranaceis, utrinque olivaceis, nitidis, lineari-lanceolatis, 20 ad 25 cm longis, 7 ad 10 mm latis, sursum sensim angustatis, tenuiter caudato-acuminatis, basi decurrentibus, nervis obscuris; cymis sessilibus, leviter ferrugineo-pubescentibus, 3 cm longis; fructibus 7 mm latis, 3 ad 4 mm longis, subtruncatis.

An erect, unbranched, suffrutescent plant, 40 to 50 cm long, glabrous except the sparingly pubescent inflorescences, the stems about 3 mm in diameter. Leaves linear-lanceolate, membranaceous, olivaceous and shining on both surfaces, 20 to 25 cm long, 7 to 10 mm wide, entire, narrowed upward to the very slenderly caudate-acuminate apex and below to the decurrent base, the midrib rather prominent on both surfaces, the lateral nerves distant, obscure; petioles 1 cm long or less; stipules 5 to 7 mm long, divided into from 3 to 5 linear segments. Cymes terminal, sessile, sparingly ferruginous-pubescent, in fruit up to 3 cm long, the fruits subtruncate, compressed, about 7 mm wide, 3 to 4 mm long, glabrous or nearly so.

MINDANAO, Zamboanga District, Mount Tubuan, *Bur. Sci.* 36565 Ramos & Edaña, October, 1919. On boulders along small streams at low altitudes.

A remarkable species, strongly characterized by its greatly elongated, linear-lanceolate, narrow, slenderly caudate-acuminate leaves.

CUCURBITACEAE

ALSOMITRA M. Roemer

ALSOMITRA SIMPLICIFOLIA sp. nov.

Frutex scandens, glaber; foliis ellipticis, integris, 10 ad 18 cm longis, apice breviter obtuse acuminatis apiculatisque, basi cordatis; inflorescentiis solitariis, 20 ad 30 cm longis, depauperato-paniculatis, ramis paucis, inferioribus usque ad 2 cm longis; fructibus sessilibus, truncatis, 3.5 cm longis, circiter 1.5 cm latis, basi acutis, in siccitate brunneis.

A scandent, somewhat woody, glabrous vine, the branches lenticellate, up to 5 mm in diameter. Leaves simple, firmly chartaceous, elliptic, entire, 10 to 18 cm long, 4.5 to 10 cm wide, the apex bluntly acuminate and minutely apiculate, the base 3-nerved, cordate, the sinus up to 1.5 cm wide, rather

shallow, the lobes rounded to subacute; lateral nerves above the basal pair 2 or 3 on each side of the midrib, slender, distinct, the reticulations lax; petioles 2 to 4 cm long; tendrils 5 to 21 cm long. Inflorescences slender, solitary, from the axils of fallen leaves, 20 to 30 cm long, the flowers racemosely arranged in the upper part, in the lower part usually few and scattered, primary branches up to 2 cm in length. Buds rather thickly club-shaped, about 7 mm long. Fruits brown when dry, sessile or subsessile, truncate, smooth, 3.5 cm long, about 1.5 cm wide, base acute.

MINDANAO, Zamboanga District, Malangas, *Bur. Sci.* 37397 *Ramos & Edaño*, November 3, 1919. In forests along streams at low altitudes, locally known as *lalapid*.

This species is manifestly most closely allied to *Alsomitra timorana* (Spanog.) Roem., from which it differs, among other characters, in its entire and very shortly acuminate leaves.

GYNOSTEMMA Blume

GYNOSTEMMA LAXUM (Wall.) Cogn. in DC. Monog. Phan. 3 (1881) 914.

Zanonia laxa Wall. Cat. (1831) no. 3727, nomen, Pl. Rar. As. 2 (1831) 29.

MINDANAO, Bukidnon Subprovince, Mahilucot River, *Bur. Sci.* 38643, 38669 *Ramos & Edaño*, July, 1920. Altitude about 1,000 meters, in forests along streams. Local name *pogsot*.

India to Sumatra, Java, and Borneo.

CAPRIFOLIACEAE

LONICERA Linnaeus

LONICERA MINDANAENSIS sp. nov. § *Nintooa*, *Breviflorae*.

Frutex scandens, partibus junioribus inflorescentiisque exceptis glaber; foliis chartaceis vel subcoriaceis, olivaceis, nitidis, utrinque glabris, oblongo-ovatis vel oblongis, 3.5 ad 6 cm longis, basi late rotundatis, apice acutis; floribus terminalibus et in axillis superioribus, 2.3 ad 2.5 cm longis, bracteis triangulari-ovatis, acuminatis, bracteolis orbiculari-reniformibus, late rotundatis, 1 mm diametro, corolla extus adpresse villosa.

A scandent shrub, glabrous except the sparingly pubescent younger parts and the inflorescences and flowers. Branches terete, smooth, reddish brown, glabrous, the branchlets slightly appressed-pubescent. Leaves chartaceous to subcoriaceous, oblong-ovate to oblong, 3.5 to 6 cm long, 1.5 to 3 cm wide, olivaceous and shining on both surfaces, glabrous, base broadly rounded, apex acute; lateral nerves slender, about 8 on each

side of the midrib; petioles 2 to 3 mm long, slightly pubescent. Flowers white and yellow, in 2-flowered cymes which are terminal and in the uppermost axils forming a few-flowered leafy inflorescence, the peduncles of the cymes somewhat pubescent, up to 8 mm long. Bracts triangular-ovate, acuminate, ciliate, about 2 mm long; bracteoles orbicular-reniform, broadly rounded, about 1 mm in diameter. Calyx 2 to 2.5 mm long, the tube glabrous, the teeth ovate, acute, 0.8 mm long, slightly pubescent. Corolla tube about 1 cm long, terete, somewhat enlarged upward, appressed-pubescent outside with short, brownish, retrorse, appressed hairs, villous inside, the lower lip about 12 mm long and 2 mm wide, the upper lip up to 7 mm wide, divided into 4 short, ovate, obtuse lobes which do not exceed 4 mm in length, the two lateral ones somewhat falcate. Filaments villous, except in the upper part, the hairs spreading; anthers 3.5 to 4 mm long. Style about 2.5 cm long, the upper 8 to 10 mm glabrous, the lower part villous with spreading hairs; stigma about 1.5 mm in diameter.

MINDANAO, Bukidnon Subprovince, Mount Dumalupihan, *Bur. Sci.* 39024 Ramos & Edaño, July 29, 1920. On forested slopes, altitude about 1,200 meters; local name *gauod bukid*.

The third species of the genus to be found in the Philippines, most closely allied to *Lonicera rehderi* Merr.; from which it differs in its glabrous leaves. From both *Lonicera rehderi* Merr. and *L. philippinensis* Merr. it differs in its larger flowers.

CAMPANULACEAE

PENTAPHRAGMA Wallich

PENTAPHRAGMA MINDANAENSE sp. nov.

Frutex erectis circiter 50 cm altus, partibus junioribus plus minusve crispato-pubescentibus; foliis inaequilateralibus, ellipticis ad oblongo-ellipticis, 15 ad 20 cm longis, integris, in siccitate membranaceis, subacutis vel breviter obtuseque acuminatis, basi subacutis, nervis utrinque 2 ad 4, adscendentibus; racemis usque ad 5 cm longis, haud scorpoideis; floribus circiter 8 mm longis, bracteis membranaceis, 6 ad 8 mm longis; calycis lobis oblongo-ovatis, obtusis, membranaceis, petalis aequantibus; petalis incrassatis, oblongo-ovatis, acuminatis, glabris, 3 mm longis.

A small erect undershrub, about 50 cm high, the younger parts more or less pubescent with crisped hairs, the stem brown, rather smooth, terete, about 6 mm in diameter, distinctly woody. Leaves somewhat inequilateral, elliptic to oblong-elliptic, 15 to 20 cm long, 7 to 9 cm wide, entire, membranaceous when dry,

pale brownish, the apex subacute to very shortly and obtusely acuminate, the base subacute, often slightly inequilateral; lateral nerves 2 or 3 on each side of the midrib, or sometimes 4 on the broader side of the leaf, prominent, ascending; petioles about 3 cm long, pubescent. Racemes in the upper axils, up to 5 cm long, the flowers white, scarcely scorpioid in arrangement, about 8 mm long, the bracts spatulate to oblong-oblongate or often narrowly obovate, membranaceous, somewhat pubescent, 6 to 8 mm long. Pedicels 3 mm long or less. Calyx somewhat pubescent, the base cuneate, the lobes oblong-ovate, obtuse, membranaceous, about equaling the petals. Petals much thickened, oblong-ovate, acuminate, glabrous, about 3 mm long.

MINDANAO, Zamboanga District, Malangas and Mount Tubuan, *Bur. Sci.* 36834 (type), 36580 Ramos & Edaña, October, 1919. Along small streams in forests at low altitudes.

Among the few Philippine species of this genus the present one is most closely allied to *Pentaphragma pulgarens* Elm. of Palawan.

COMPOSITAE

VERNONIA Schreber

VERNONIA BONTOCENSIS sp. nov.

Frutex scandens, ramis leviter pubescentibus, parce lenticellatis, ramulis dense sordide pubescentibus; foliis membranaceis ad chartaceis, oblongis ad oblongo-ellipticis, 5 ad 9 cm longis, atro-olivaceis, integris, acutis vel acuminatis, basi acutis, subtus eglandulosis, nervis utrinque circiter 6, reticulis ultimis cystolithiformis; inflorescentiis axillaribus terminalibusque, capitulis paucis (2 ad 5), racemose dispositis; capitulis 14 mm longis, cylindraceis, circiter 8-floris, bracteis interioribus 7 mm longis, margine et apice pubescentibus; acheniis 4 mm longis, perspicue glandulosis.

A scandent, woody vine, the branches grayish brown, terete, longitudinally striate, slightly pubescent, very sparingly lenticellate, the ultimate branchlets 1.5 to 2 mm in diameter, densely pubescent with short, dirty brown hairs. Leaves membranaceous to chartaceous, oblong to oblong-elliptic, 5 to 9 cm long, 2 to 3.5 cm wide, dark olivaceous, slightly shining, subequally narrowed to the acute or shortly acuminate apex and the cuneate base, the margins entire, the upper surface entirely glabrous, the lower surface sparingly pubescent on the midrib and nerves, eglandular, the ultimate reticulations on the lower surface distinctly cystolith-like; lateral nerves about 6 on each side of the

midrib, rather prominent, anastomosing, the primary reticulations lax, distinct; petioles pubescent, 8 to 10 mm long. Inflorescences terminal and in the leaf axils on the ultimate branchlets, the individual ones short, 2 to 4 cm in length, each composed of from 2 or 3 to 5 racemously arranged heads, the peduncles pubescent, up to 1 cm in length. Heads about 14 mm long, approximately 8-flowered, subcylindric, the outer bracts ovate, 2 mm long, distinctly pubescent, the inner ones gradually longer, the innermost about 7 mm long, 3 mm wide, acute, their margins and tips more or less pubescent; achenes 4 mm long, with numerous, shining, yellowish glands, the pappus copious, about 6 mm long, straw-colored or pale brownish.

LUZON, Bontoc Subprovince, Mount Pukis, *Bur. Sci.* 37752 Ramos & Edaña, March, 1920, on open slopes, altitude about 1,300 meters.

A species most closely allied to *Vernonia lenticellata* Elm., but with somewhat larger leaves and larger heads, the peduncles also longer in the present species. It differs further in the cystolith-like ultimate reticulations; its very sparingly lenticellate branches; and in the involucrel bracts being pubescent chiefly on the margins and at their apices.

VERNONIA MINDANAENSIS sp. nov.

Frutex scandens, partibus junioribus sordide pubescentibus; foliis chartaceis ad subcoriaceis, oblongis ad oblongo-obovatis, integris, 6 ad 8 cm longis, acuminatis, basi acutis, subtus eglandulosis, pubescentibus, nervis utrinque circiter 5; inflorescentiis paniculatis, usque ad 18 cm longis; capitulis, numerosis, 1.5 ad 1.7 cm longis, circiter 20-floris; bracteis dense cinereo-pubescentibus, interioribus 10 mm longis; acheniis glabris, sulcatis, 4 mm longis. Species *V. philippinensis* affinis differt acheniis glaberrimis.

A woody vine reaching a height of 10 m, the branches dark reddish brown, striate, terete, somewhat pubescent, the ultimate branchlets 2 to 3 mm in diameter, rather densely pubescent with short, dirty brown hairs. Leaves chartaceous to subcoriaceous, oblong to oblong-obovate, entire, 6 to 8 cm long, 2.5 to 3.5 cm wide, the apex shortly acuminate, base cuneate, the upper surface dark olivaceous, shining, nearly glabrous except for the sparingly pubescent midrib and nerves, the lower surface paler, eglandular, with scattered pubescence on all parts but more especially on the midribs, nerves, and reticulations; lateral nerves about 5 on each side of the midrib, curved-anastomosing, distinct,

as are the primary reticulations; petioles pubescent, 5 to 10 mm long. Heads arranged in somewhat leafy panicles terminating the branchlets, the panicles rather densely pubescent, up to 18 cm long, the peduncles up to 1 cm in length. Heads 1.5 to 1.7 cm long, about 20-flowered, the outer bracts oblong to oblong-ovate, 2 mm long, the inner ones lanceolate, acuminate, about 10 mm long, 2.3 mm wide, all rather densely cinereous-pubescent. Achenes 4 mm long, longitudinally sulcate, entirely glabrous; pappus copious, somewhat tawny, about 10 mm long.

MINDANAO, Bukidnon Subprovince, Mount Candoon, *Bur. Sci.* 38886 (type) Ramos & Edaña, June, 1920: Lanao District, Camp Keithley, Mrs. Clemens 1086, May, 1907. In damp forests at an altitude of about 1,000 meters. Locally known in Bukidnon as *gauod*.

A species belonging in the group with *Vernonia philippinensis* Rolfe, apparently most closely allied to that species, differing especially in its entirely glabrous achenes.

LACTUCA Linnaeus

LACTUCA INTEGRAL sp. nov.

Herba erecta, glabra, ramosa, usque ad 40 cm alta; foliis chartaceis, lanceolatis ad oblongo-lanceolatis, acutis vel leviter acuminatis, usque ad 7 cm longis, radicalibus numerosis, petiolatis, confertis, caulinis quam radicalibus multo minoribus, sessilibus, nervis reticulisque obscuris; capitulis corymbose-paniculatis, pedicellatis, 6 ad 7 mm longis, bracteis exterioribus parvis, interioribus plerumque 8, circiter 6 mm longis, glabris, anguste oblongis, obtusis; acheniis oblongis, 3 ad 3.5 mm longis, longitudinaliter costatis, glabris, sursum leviter angustatis.

An erect, glabrous, branched herb about 40 cm high, olivaceous or brownish olivaceous when dry. Radical leaves very numerous, crowded, chartaceous, lanceolate, subequally narrowed at both ends, 5 to 7 cm long, 1 to 1.5 cm wide, entire, shining, acute, base decurrent; petioles up to 2 cm long; lateral nerves slender, obscure, anastomosing. Stem leaves much smaller than the radical ones, lanceolate to ovate-lanceolate, sessile, entire, acute, base obtuse to rounded or somewhat cordate, somewhat clasping the stems, 1.5 to 4 cm long, the upper much smaller than the lower ones. Branches few, scattered, up to 18 cm long. Heads corymbose-paniculate, 6 to 7 mm long, pedicellate, the outer bracts small, few, 2 mm long or less, the inner narrowly oblong, obtuse, 5 to 6 mm long, about 1 mm wide, glabrous. Flowers few, about 10 in each head. Corolla

about 4 mm long, the tube 1 mm. Achenes 3 to 3.5 mm long, somewhat compressed, glabrous, longitudinally about 9-ribbed, slightly narrowed upward. Pappus nearly white, 2.5 mm long, rather copious. Torus glabrous.

LUZON, Tayabas Province, Dingalan, *Bur. Sci.* 26586 Ramos & Edaño, August 24, 1916, on rocks along the seashore.

A characteristic species, among the Philippine forms most closely allied to *Lactuca dentata* C. B. Rob., but entirely different from that species. It is readily recognizable by its heteromorphous entire leaves. The specimens were originally identified as *Lactuca stolonifera* (A. Gray) Maxim., but a comparison made by Mr. S. F. Blake with Gray's type shows it to be very different from that species.